“Electrical Equipment” includes any regulated product that is used, designed or intended for use for, or in connection with the generation, transmission, supply, distribution or use of electrical energy for any purpose.

Select one:
True
False

Feedback

Definitions for the Act #1

The correct answer is 'True'.

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The definition of “Regulatory Authority” includes municipal inspection services.

Select one:
True
False

Feedback

Definitions #2

The correct answer is 'True'.

Question **3**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A homeowner may do electrical work in their fully-detached dwelling, provided the work is completed in accordance with the Electrical Regulations and an installation permit has been obtained.

Select one:
True
False

Feedback

Section - #17 (1) and (2)

The correct answer is 'True'.

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A homeowner may do electrical work provided the current does not exceed 250 amps and the voltage is limited to 150 volts to ground, single phase.

Select one:
True
False

Feedback

Section - #17 (2) (b) 200 A Maximum

The correct answer is 'False'.

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

According to the regulations, a Class A or B gas fitter may replace a 24 volt thermostat without an electrical permit.

Select one:
True
False

Feedback

Section - #18 (2) (g)

The correct answer is 'True'.

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A permit is required for each portion of a structure with a separate electrical supply service.

Select one:
True
False

Feedback

Section - #11 (1) (b)

The correct answer is 'True'.

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A Class A or B gas fitter is authorized to supervise a person to do electrical work on gas-fired appliances.

Select one:
True
False

Feedback

Section - #4 (3) also Section 5 Safety Standards General Regulations

The correct answer is 'True'.

Question **8**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A Field Safety Representative identified on an installation permit must request an inspection at least once in every 200 day period.

Select one:
True
False

Feedback

Section - #19 (1) 180 days

The correct answer is 'False'.

Question **9**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

If a gas contractor is installing a furnace under a gas installation permit, no additional permit is required to do the electrical work.

Select one:
True
False

Feedback

Section - #13

The correct answer is 'True'.

Bonding means joining non-current carrying metal parts together to assure electrical continuity.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A wire connector is a device for securing a cable to a box

Select one:
True
False

Feedback

The correct answer is 'False'.

Question **3**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Short-time duty is a service requirement that has varying loads and unpredictable times.

Select one:
True
False

Feedback

The correct answer is 'False'.

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Extra low voltage is restricted to an output of 2000 V

Select one:
True
False

Feedback

The correct answer is 'False'.

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A dry location includes a location subject to temporary dampness.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A low voltage release device operates (opens) on voltage reduction and maintains the interruption when the voltage is restored.

Select one:
True

False

Feedback

The correct answer is 'False'.

Question **7**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

All over-current devices must be capable of automatic operation under overload and short-circuit conditions.

Select one:

True

False

Feedback

The correct answer is 'True'.

Question **8**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Low voltage means any voltage from 24 to 750 volts.

Select one:

True

False

Feedback

The correct answer is 'False'.

Question **9**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

A split receptacle means two male contact devices on the same yoke.

Select one:

True

False

Feedback

The correct answer is 'False'.

Question **10**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A cellular floor could also be called a raceway.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **11**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

“Approved” as applied to electrical equipment, means equipment bearing the __________ label.

Select one:

a.
A.S.M.E

b.
A.G.A

c.
C.S.A

d.
U.L.C

Feedback

Your answer is correct.

The correct answer is: C.S.A

When anchoring into masonry or concrete for supporting electrical equipment, what type of material should never be used?

a.
aluminum

b.
galvanized

c.
stainless

d.
wood

Feedback

Your answer is correct.

(2-114)

The correct answer is:
wood

Question **2**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the clearance between any arc-producing electrical equipment and a gas relief device or vent?

a.
1 m

b.
2 m

c.
0.5 m

d.
1.5 m

Feedback

Your answer is correct.

(2-326)

The correct answer is:
1 m

Question **3**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Where a fire separation is pierced by a raceway or cable, the opening around the cable or raceway shall be sealed in compliance with:

a.
NPS

b.
NBC

c.
NFPA

d.
NPC

Feedback

Your answer is correct.

(2-128)

The correct answer is:
NBC

Question **4**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

When a motor is totally enclosed and used in a non-hazardous location, the motor shall be marked “WP” which is code for:

a.
Winter proof

b.
Wire proof

c.
Wind proof

d.
Weather proof

Feedback

Your answer is correct.

(2-404)

The correct answer is:
Weather proof

Question **5**
Incorrect
Mark 0.0 out of 1.0

Flag question

Question text

A single-family dwelling shall not have a branch circuit exceeding what voltage?

a.
240 volts to ground

b.
150 volts to ground

c.
120 volts to ground

d.
300 volts to ground

Feedback

Your answer is incorrect.

(2-110)

The correct answer is:
150 volts to ground

Question **6**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Which of the following designations of enclosures for electrical equipment may be subject to direct streams of water?

a.
Type 6

b.
Type 3

c.
Type 4

d.
Type 2

Feedback

Your answer is correct.

(2-400)

The correct answer is:

Type 4

Question **7**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

What is the minimum headroom of working space around switchboards or motor control centers where bare live parts are exposed?

a.
2 m

b.
2.2 m

c.
1 m

d.
2.5 m

Feedback

Your answer is correct.

(2-308)

The correct answer is:
2.2 m

Question **8**

Incorrect

Mark 0.0 out of 1.0

Flag question

Question text

When applying the thermal insulation of electrical wiring, what is the minimum space between the thermal insulation and the knob and tube wiring?

a.
25 mm

b.
100 mm

c.
75 mm

d.
32 mm

Feedback

Your answer is incorrect.

(2-126)

The correct answer is:
25 mm

Question **9**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

During the installation of any heating, ventilation, or air conditioning equipment on the roof of a building other than a dwelling unit, what shall also be installed on the roof?

a.
Sub-Panel

b.
A Splitter

c.
Receptacle

d.
Three-Way Switch

Feedback

Your answer is correct.

(2-3165)

The correct answer is:
Receptacle

Question **10**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What shall be provided to prevent ambient air temperatures around electrical equipment from exceeding permissible temperatures for such equipment?

a.
Conduit

b.
An Enclosure

c.
Temperature Sensor

d.
Adequate Ventilation

Feedback

Your answer is correct.

(2-322)

The correct answer is:
Adequate Ventilation

What would the ampacity limit be for three current-carrying conductors in a conduit if the conductors are 1/0 AWG RW75?

a.
150 amps

b.
330 amps

c.
310 amps

d.
271 amps

Feedback

Your answer is incorrect.

Table 2.... 1/0, RW75 150A

The correct answer is:
150 amps

Question **2**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Three 500 kcmil RW75 aluminum conductors are installed in a raceway. The ambient temperature in the area is 45 degree C. What is the maximum allowable ampacity of these conductors ?

a.
271 amps

b.

310 amps

c.
330 amps

d.
254 amps

Feedback

Your answer is incorrect.

Code Rule - 4-404(2) (b) and (8) 310A x 0.82 = 254.2A

The correct answer is:
254 amps

Question **3**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

You have just installed six 10 AWG R90 conductors in a raceway. What is the maximum allowable ampacity of these conductors?

a.
40 amps

b.
30 amps

c.
18 amps

d.
32 amps

Feedback

Your answer is incorrect.

Code Rule - 4-004 (1) (c) 40A x 0.8 = 32A

The correct answer is:
32 amps

Question **4**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Which of the following statements would be incorrect when referring to all neutral conductors up to 2 AWG in size?

a.
They may be grey in colour

b.
They may be green in color

c.
They may be white in colour

d.
They shall be installed in all separately closed switches and circuit breakers according to 4-026

Feedback

Your answer is incorrect.

Code Rule - 4-024 and 4-032

The correct answer is:
They may be green in color

Question **5**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

With the exception of a flexible cord, equipment wire, control circuits, and cable, insulated copper conductors shall not be smaller than:

a.
14 AWG

b.
10 AWG

c.
16 AWG

d.
12 AWG

Feedback

Your answer is correct.

(4-002)

The correct answer is:

14 AWG

Question **6**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

When running six #10AWG (NMD90) conductors in a raceway entering a mechanical room, what would be the maximum ampacity allowed if the ambient temperature is expected to be 45 degrees Celsius?

a.
32 A

b.
28 A

c.
35 A

d.
40 A

Feedback

Your answer is correct.

(Table2) (Table 5A) (Table 5C)

The correct answer is:
28 A

Question **7**

Incorrect

Mark 0.0 out of 1.0

Flag question

Question text

Which of the following shall not be counted when determining the ampacities as provided for in clause 4-004 subrule 1) and 2):

a.
Current Carrying Conductor

b.
Neutral Conductor of 2 Wire

c.
Bonding Conductor

d.

High Resistance Conductor

Feedback

Your answer is incorrect.

(4-004-6)

The correct answer is:
Bonding Conductor

Question **8**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

The maximum allowable current that 2 or 3 insulated conductors contained in a flexible cord are permitted to carry, are found in which table?

a.
Table 12

b.
Table 2

c.
Table 19

d.
Table 4

Feedback

Your answer is incorrect.

(Table 12)

The correct answer is:
Table 12

Question **9**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Where color-coded circuits are required, the following color conductors shall be used for three-phase AC:

a.
Black, White and Red

b.

Red, Black and Blue

c.
Red, Blue and White

d.
Black, Green and Red

Feedback

Your answer is incorrect.

(4-032-3)

The correct answer is:
Red, Black and Blue

Question **10**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the minimum AWG size for 2 RW60 aluminum conductors in a cable supplying a branch circuit with a load of 35A?

a.
8 AWG

b.
6 AWG

c.
10 AWG

d.
12 AWG

Feedback

Your answer is correct.

(Table 4)

The correct answer is:
8 AWG

Question **11**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the maximum allowable ampacity for an NMD90 #4 AWG single conductor installed in free air?

a.
130 A

b.
115 A

c.
140 A

d.
120 A

Feedback

Your answer is correct.

(Table 1)

The correct answer is:
140 A

Question **12**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Voltage in a single family dwelling or duplex is nominally:

a.
110 V/ 220 V

b.
120 V/ 208 V

c.
120 V/ 240 V

d.
115 V / 230 V

Feedback

Your answer is correct.

Code Rule - 8-100

The correct answer is:
120 V/ 240 V

Question **13**

Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the maximum allowable voltage drop in a branch circuit?

a.
5 %

b.
6 %

c.
3 %

d.
4 %

Feedback

Your answer is correct.

Code Rule - 8-102 (1)(a)

The correct answer is:
3 %

Which of the following is not an acceptable means of connecting a grounding conductor to the grounding electrode?

a.
Brazing

b.
A Bolted Clamp

c.
Copper Welding by Fusion

d.
Arch Welding

Feedback

Your answer is incorrect.

(10-118)

The correct answer is:
Arch Welding

Question **2**
Correct

Mark 1.0 out of 1.0
Flag question

Question text

The minimum size of an equipotential bonding conductor installed as concealed wiring and mechanically protected shall be permitted to be:

a.
4AWG Alu

b.
6AWG Cu

c.
10AWG Cu

d.
10AWG Alu

Feedback

Your answer is correct.

(10-708)

The correct answer is:
10AWG Cu

Question **3**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

The size of field installed system bonding jumper shall not be less then that determined in acceptance to which table:

a.
Table 11

b.
Table 19

c.
Table 12

d.
Table 16

Feedback

Your answer is incorrect.

The correct answer is:

Table 16

Question **4**

Incorrect

Mark 0.0 out of 1.0

Flag question

Question text

An AC system shall be permitted to be ungrounded provided that the system is:

a.
Ungrounded system is prohibited

b.
Equipped with a low melting point fuse

c.
Equipped with ground fault detection

d.
Installed by an FSR

Feedback

Your answer is incorrect.

(10-400)

The correct answer is:
Equipped with ground fault detection

Question **5**

Incorrect

Mark 0.0 out of 1.0

Flag question

Question text

Manufactured grounding electrodes shall in the case of a rod grounding electrode consist of two rod electrodes spaced out not less than:

a.
15 feet

b.
5 feet

c.
3 feet

d.
10 feet

Feedback

Your answer is incorrect.

(10-102)

The correct answer is:
10 feet

Question **6**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

What is the size aluminum bonding conductor for a 100amp appliance?

a.
8AWG

b.
10AWG

c.
4AWG

d.
6AWG

Feedback

Your answer is incorrect.

(Table 16)

The correct answer is:
6AWG

Electrical metallic tubing shall not be permitted to be used:

a.
For Exposed Work

b.
Wet Locations

c.
Concealed Work

d.
Direct Earth Burial

Feedback

Your answer is incorrect.

(12-1404)

The correct answer is:
Direct Earth Burial

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where it is intended that insulated conductors are to be drawn into a raceway, a run of a raceway between outlets or draw-in points shall not have more than how many 90-degree bends?

a.
6

b.
4

c.
8

d.
2

Feedback

Your answer is correct.

(12-942)

The correct answer is:
4

Question **3**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which of the following is permitted for direct earth burial?

a.
RW90

b.
NMD90

c.
RW75

d.
Teck90

Feedback

Your answer is incorrect.

(table 19)

The correct answer is:
Teck90

Question **4**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where conductors issue from armored cable, they shall be protected from abrasion, provided that the inner jacket is left protruding beyond the armor a minimum of:

a.
8mm

b.
3mm

c.
10mm

d.
5mm

Feedback

Your answer is incorrect.

(12-610)

The correct answer is:
5mm

Question **5**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the maximum number of conductors permitted to be installed in one conduit?

a.
200

b.

150

c.
300

d.
250

Feedback

Your answer is incorrect.

(12-910)

The correct answer is:
200

Question **6**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

At each outlet for making of joints or the connection of electrical equipment, unless the insulated conductors are intended to loop through lamp holders or receptacles. Each conductor shall be left with at least how much free conductor?

a.
50mm

b.
75mm

c.
300mm

d.
150mm

Feedback

Your answer is incorrect.

(12-3000)

The correct answer is:
150mm

Question **7**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Portable power cable shall not be used:

a.
The connection of travelling amusement park equipment

b.
Wiring of cranes, or hoists

c.
As a substitute for the fixed wiring of structures

d.
Electrical equipment intended to move from place to place

Feedback

Your answer is correct.

(12-406)

The correct answer is:
As a substitute for the fixed wiring of structures

Question **8**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where non-metallic sheathed cable is run in proximity of heating ducts, the space between the cable and the heating shall be at least:

a.
25mm

b.
50mm

c.
150mm

d.
75mm

Feedback

Your answer is incorrect.

(12-506)

The correct answer is:
25mm

Question **9**

Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where a cable is run through studs, joists or similar members, the cable shall be protected from mechanical damage when the distance from the edges of the members is less than:

a.
32mm

b.
25mm

c.
13mm

d.
50mm

Feedback

Your answer is incorrect.

(12-516)

The correct answer is:
32mm

Question **10**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the trade size conduit required for 75-12AWG R90 insulated conductors with a jacket installed with a maximum number of 600V?

a.
78

b.
91

c.
63

d.
53

Feedback

Your answer is correct.

(Table 6C)

The correct answer is:
78

Question **11**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the maximum number of 10AWG RW75 conductors without a jacket permitted to installed in a trade size 53 conduit, if used with 600V?

a.
50

b.
75

c.
68

d.
37

Feedback

Your answer is incorrect.

(Table 6A)

The correct answer is:
50

Question **12**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Electrical metallic tubing shall be installed as a complete system and shall be securely fastened in place within____ of each outlet box, junction box, cabinet or fitting:

a.
0.5m

b.
1m

c.
2m

d.
1.5m

Feedback

Your answer is incorrect.

(12-1406)

The correct answer is:
1m

Question **13**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A separate bonding conductor shall be installed in rigid PVC conduit in compliance to which rule:

a.
10-60

b.
10-614

c.
10-700

d.
10-612

Feedback

Your answer is incorrect.

(12-1122)

The correct answer is:
10-612

Question **14**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which of the following shall not be used to pull conductors through raceways?

a.
Talc

b.

Conductor pulling compound

c.
Soapstone

d.
Cleaning agents

Feedback

Your answer is incorrect.

(12-908)

The correct answer is:
Cleaning agents

Question **15**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Electrical metallic tubing shall have a inside diameter not less the what trade size?

a.
12

b.
21

c.
37

d.
16

Feedback

Your answer is incorrect.

(12-1408)

The correct answer is:
16

Question **16**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where armored cables are bent during installation, the radius of the curve of the inner edge of the bend shall be at least___ times the external diameter of the armored cable?

a.
5

b.
3

c.
6

d.
4

Feedback

Your answer is correct.

(12-614)

The correct answer is:
6

Question **17**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where there is a run between boxes and fittings it shall be supported with how far from every box or fitting?

a.
150mm

b.
100mm

c.
300mm

d.
450mm

Feedback

Your answer is incorrect.

(12-510)

The correct answer is:
300mm

Plug fuses shall be rated at not more than:

a.

10A

b.
5A

c.
30A

d.
20A

Feedback

Your answer is correct.

(14-208)

The correct answer is:
30A

Question **2**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the rating or setting of overcurrent devices protecting a conductor with an ampacity of 22 amps?

a.
22A

b.
30A

c.
25A

d.
20A

Feedback

Your answer is correct.

(Table 13)

The correct answer is:
25A

Question **3**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Circuit breakers shall be:

a.
Solid State Type

b.
Trip-Free Type

c.
Time Delay Type

d.
Low Melting Point Type

Feedback

Your answer is correct.

(14-300)

The correct answer is:
Trip-Free Type

Question **4**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Plug fuses and Fuse-Holders shall not be used in circuits exceeding:

a.
240V

b.
24V

c.
125V

d.
208V

Feedback

Your answer is correct.

(14-202)

The correct answer is:
125V

Question **5**

Correct
Mark 1.0 out of 1.0
Flag question

Question text

Ratings or settings of overcurrent devices protecting conductors shall be taken from which table?

a.
Table 12

b.
Table 11

c.
Table 13

d.
Table 19

Feedback

Your answer is correct.

(14-104)

The correct answer is:
Table 13

Class B Gas Fitters according to the Gas and Safety Regulations are permitted work on what type of electrical systems?

a.
Class 2

b.
Class 1

c.
Class 1 and 2

d.
Poly Phase

Feedback

Your answer is incorrect.

(Gas and Safety Regulation 8)

The correct answer is:
Class 2

Question **2**

Correct
Mark 1.0 out of 1.0
Flag question

Question text

Type ELC conductors shall be limited in use to:

a.
Wiring heating control circuits

b.
Fire safety circuits

c.
Smoke alarm devices

d.
Class 2 circuits 30V or less

Feedback

Your answer is correct.

(16-210)

The correct answer is:
Class 2 circuits 30V or less

Question **3**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Conductors of two or more class 2 circuits shall be permitted within the same cable, enclosure, or raceway, provided that all conductors are:

a.
Installed to limit fire spread

b.
Identified which circuit they control

c.
2 or more class 2 circuits are prohibited to be installed together

d.
Insulated for the maximum voltage of any of the conductors

Feedback

Your answer is correct.

(16-214)

The correct answer is:
Insulated for the maximum voltage of any of the conductors

Question **4**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Individual copper conductors in class 2 circuits pulled in a raceway, shall not be smaller than:

a.
19AWG

b.
22AWG

c.
26AWG

d.
16AWG

Feedback

Your answer is correct.

(16-210)

The correct answer is:
16AWG

Question **5**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Class 2 circuits over 20V but not exceeding 30V shall have an overcurrent protection rating in amperes not exceeding:

a.
1000VA

b.
20VA

c.
40VA

d.
100VA

Feedback

Your answer is correct.

(16-200)

The correct answer is:
100VA

Which type of switch shall be permitted to be located so that a hook stick is required to operate them?

a.
Isolating switch

b.
Disconnect switch

c.
Three-Way switch

d.
General Use switch

Feedback

Your answer is incorrect.

(26-100)

The correct answer is:
Isolating switch

Question **2**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Panelboards in dwelling units shall be installed as high as possible, with no overcurrent device operating handle positioned above the finished floor by more than:

a.
1.7m

b.
1m

c.
1.2m

d.
0.5m

Feedback

Your answer is incorrect.

(26-600)

The correct answer is:
1.7m

Question **3**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

At what height above the floor do cables for branch circuits need to be adequately protected from mechanical damage?

a.
0.5m

b.
2m

c.
1.5m

d.
1m

Feedback

Your answer is incorrect.

(26-802)

The correct answer is:
1.5m

Question **4**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

All electric power for heating unit and associated equipment shall be obtained from a single branch circuit and used for no other purposes except which of the following appliances?

a.
Oven

b.
Boiler

c.
Water Heater

d.
Furnace

Feedback

Your answer is incorrect.

(26-806)

The correct answer is:
Water Heater

Question **5**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

A single dwelling shall have one receptacle provided for the cord-connected overhead garage door opener within how far from the overhead opener?

a.
1.5m

b.
2m

c.
1m

d.
0.5m

Feedback

Your answer is correct.

(26-726)

The correct answer is:
1m

Which table is used to find the full load current for single phase motors?

a.
Table 45

b.
Table 48

c.

Table 50

d.
Table 44

Feedback

Your answer is correct.

(28-010)

The correct answer is:
Table 45

Question **2**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Adequate ventilation shall be provided to prevent the development around integral horsepower motors of ambient temperatures from exceeding:

a.
20 degrees Celsius

b.
30 degrees Celsius

c.
50 degrees Celsius

d.
40 degrees Celsius

Feedback

Your answer is correct.

(28-016)

The correct answer is:
40 degrees Celsius

Question **3**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Supply conductors to a motor box shall have a ampacity of the conductor insulating rating based on what temperature?

a.

75 C

b.
90 C

c.
110 C

d.
60 C

Feedback

Your answer is correct.

(28-104)

The correct answer is:
75 C

Question **4**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

The insulated conductors of a branch circuit supplying a motor for use on continuous duty service shall have an ampacity not less then ____ of the full load current:

a.
110%

b.
115%

c.
100%

d.
125%

Feedback

Your answer is correct.

(28-106)

The correct answer is:
125%

Question **5**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Which of the following overcurrent devices is not permitted on a underground conductor of motor branch circuit?

a.
A Non-Time Delay Fuse

b.
An Instantaneous-Trip Circuit Interrupter

c.
Low Melting Type Fuse

d.
A Time Delay Fuse

Feedback

Your answer is correct.

(28-200)

The correct answer is:
Low Melting Type Fuse

Question **6**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

The motor and starter motor or controller disconnecting means shall be located not more than ____ of the motor starter or controller?

a.
4m

b.
15m

c.
7m

d.
9m

Feedback

Your answer is incorrect.

(28-604)

The correct answer is:

9m

Question **7**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

What is the minimum copper conductor required on a 1 HP single phase motor rated for 115V?

a.
RW75 14 AWG

b.
RW60 12 AWG

c.
TW 90 14 AWG

d.
TW75 12 AWG

Feedback

Your answer is incorrect.

(Table 45 16A x 1.25=20A)

(Table 2)

The correct answer is:
RW75 14 AWG

Question **8**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What is the full load current on a single phase 1/3 HP motor that requires 240V?

a.
5.8 A

b.
3.6 A

c.
7.2 A

d.
2.9 A

Feedback

Your answer is correct.

(Table 45)

The correct answer is:
3.6 A

Question **9**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Two aluminum conductors are ran in a raceway supplying 120V to a 2 HP motor, what is the minimum size conductor required if the motor is installed in an ambient temperature of 40 degrees celsius?

a.
10 AWG TW75

b.
8 AWG RW60

c.
10 AWG RW60

d.
8 AWG TW75

Feedback

Your answer is incorrect.

(Table 45 24 FLC x 1.25=30A)

(Table 5A 30 A / .88= 34.09 A)

(Table 4)

The correct answer is:
8 AWG TW75

Question **10**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What table is used to get the rating of the overcurrent device protection on a branch circuit supplying a motor?

a.

Table 12

b.
Table 16

c.
Table 19

d.
Table 29

Feedback

Your answer is correct.

(28-200)

The correct answer is:
Table 29

The installation of an insulated #to copper neutral conductor shall comply with which of the following requirement ?

Select one:
a.
It shall be installed in all separately enclosed switches

b.
It may be identified by a natural grey covering

c.
It may be identified by a white covering

d.
All the options requirement apply to the installation of a neutral condutor

Feedback

Your answer is correct.

The correct answer is: All the options requirement apply to the installation of a neutral condutor

Question **2**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which one of the following tables , from the electrical code would be used to determine the full load current of a single phase AC motor ?

Select one:
a.
Table 17

b.

Table 44

c.
Table 45

d.
Table 37

Feedback

Your answer is incorrect.

The correct answer is: Table 45

Question **3**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The electrical code table that identifies the conditions of use for extra-low-voltage control cable (LVT) is ;

Select one:
a.
Table 19

b.
Table 11

c.
Table D1

d.
Table 60

Feedback

Your answer is incorrect.

The correct answer is: Table 19

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Non-metallic sheathed cable used in exposed wiring installations shall be adequately protected against damage when it is installed below which one of the following heights ?

Select one:
a.
2 meters

b.
2.5 meters

c.
1 meter

d.
1.5 meters

Feedback

Your answer is correct.

The correct answer is: 1.5 meters

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A permit is required before commencing work with respect to installation, alteration repair or extension of any electrical equipment.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Bonding means joining non-current carrying metal parts together to assure electrical continuity.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

No one shall repair or alter live equipment , unless disconnection is not practicable.

Select one:
True
False

Feedback

The correct answer is 'True'.

Question **8**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The full load current rating (FLA) of a single phase 115V 3 HP AC motor is :

Select one:
a.
304 amps

b.
17 amps

c.
34 amps

d.
24 amps

Feedback

Your answer is correct.

The correct answer is: 34 amps

Question **9**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

When must you apply for an electrical permit ?

Select one:
a.
Before any of the wire is covered or concealed

b.
Before any electrical work starts

c.
Immediately before connection to the utility power supply

d.
Immediately before the first electrical inspection

Feedback

Your answer is correct.

The correct answer is: Before any electrical work starts

Question **10**
Correct

Mark 1.00 out of 1.00
Flag question

Question text

What is the maximum circuit voltage-to-ground in a dwelling unit (single family) ?

Select one:
a.
240 V

b.
30 V

c.
300 V

d.
150 V

Feedback

Your answer is correct.

The correct answer is: 150 V

Question **11**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which group provides certification for gas furnaces ?

Select one:
a.
U.L

b.
N.F.P.A

c.
A.G.A

d.
C.G.A

Feedback

Your answer is incorrect.

The correct answer is: U.L

Question **12**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which of the following is not permitted as a disconnecting means ?

Select one:
a.
Three way switch

b.
Single pole switch

c.
Switching breaker

d.
Disconnect switch

Feedback

Your answer is correct.

The correct answer is: Three way switch

Question **13**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the minimum clearance between a receptacle and a gas meter installed within a building ?

Select one:
a.
300 mm

b.
1000 mm

c.
1.5 m

d.
10 m

Feedback

Your answer is incorrect.

The correct answer is: 1000 mm

Question **14**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What does the code letters TE refer to as when found marked on motors for use in non-hazardous locations ?

Select one:
a.
Totally enclosed

b.
Tungsten enamelled
c.
Torque engineerd

d.
Tasmanian electric

Feedback

Your answer is correct.

The correct answer is: Totally enclosed

Question **15**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What gauge 2 wire copper cable has an allowable ampacity of 15 amps ?

Select one:
a.
No 16

b.
No 14

c.
No 12

d.
No 10

Feedback

Your answer is correct.

The correct answer is: No 14

Question **16**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which table shows the maximum current that can flow through a non conductor aluminum cable ?

Select one:
a.
Table 4

b.
Table 3

c.
Table 2

d.
Table 1

Feedback

Your answer is correct.

The correct answer is: Table 4

Question **17**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the ampacity of No.12 AWG NMD 90 copper conductor ?

Select one:
a.
15 amps

b.
20 amps

c.
40 amps

d.
30 amps

Feedback

Your answer is incorrect.

The correct answer is: 30 amps

Question **18**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the ampacity of a Type SO flexible cord with 2 No 14 AWG conductors ?

Select one:
a.
10 amps

b.
18 amps

c.

20 amps

d.
15 amps

Feedback

Your answer is correct.

The correct answer is: 18 amps

Question **19**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What color must be used for a neutral conductor ?

Select one:
a.
White

b.
Red

c.
Black

d.
Green

Feedback

Your answer is incorrect.

The correct answer is: White

Question **20**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the color of an insulated grounding or bonding conductor ?

Select one:
a.
Green

b.
Red

c.
White

d.
Black

Feedback

Your answer is correct.

The correct answer is: Green

Question **21**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the maximum ampacity of one No 4 TW75 aluminum conductor in free air ?

Select one:
a.
125 amps

b.
85 amps

c.
65 amps

d.
100 amps

Feedback

Your answer is correct.

The correct answer is: 100 amps

Question **22**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What size copper conductor is required to feed a 120 volt, 10 amp furnace circuit if the conduit between the panel and the junction box near the furnace carries 7 power conductors ?

Select one:
a.
No 14

b.
1/0

c.
No 12

d.
No 10

e.
No 8

Feedback

Your answer is incorrect.

The correct answer is: No 14

Question **23**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Low voltage is considered to be :

Select one:
a.
0 to 30 volts

b.
310 to 1750 volts

c.
0 to 50 volts

d.
31 to 750 volts

Feedback

Your answer is incorrect.

The correct answer is: 31 to 750 volts

Question **24**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The nominal supply voltage of a safety control circuit for gas or oil fuel burning equipment shall not exceed which one of the following voltages ?

Select one:
a.
240 volts

b.
120 volts

c.
24 volts

d.
40 volts

Feedback

Your answer is incorrect.

The correct answer is: 120 volts

Question **25**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where armoured cables are bent during installation the radius of the curve of the inner edge of the bends shall be at least ____________ times the external diameter of the armoured cable ?

Select one:
a.
5

b.
6

c.
3

d.
2

Feedback

Your answer is correct.

The correct answer is: 6

Question **26**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The nominal voltage encountered in a single family residential dwelling is :

Select one:
a.
115/230 volts

b.
110/220 volts

c.
120/208 volts

d.
120/240 volts

Feedback

Your answer is correct.

The correct answer is: 120/240 volts

Question **27**

Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

hconnecting means for a gas appliance in a single family dwelling shall be within sight of and within a maximum of _______ meters of the motor ?

Select one:
a.
6

b.
5

c.
3

d.
9

Feedback

Your answer is incorrect.

The correct answer is: 9

Question **28**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A for gas fitter is not permitted to perform which one of the following types for electrical work ?

Select one:
a.
Install class 2 low voltage thermostat control wiring

b.
Install 120 volt wiring from the circuit panelboard to the furnace

c.
Remove and replace with new an existing gas appliance where the full load currents of the two units are identical

d.
Remove and replace with new an identical integral replacement part for the electrical control of a gas appliance

Feedback

Your answer is correct.

The correct answer is: Install 120 volt wiring from the circuit panelboard to the furnace

Question **29**
Correct

Mark 1.00 out of 1.00
Flag question

Question text

All interior gas piping which may become energized , required a copper bonding conductor that is not smaller than which one of the following wire sizes ?

Select one:
a.
10

b.
6

c.
8

d.
4

Feedback

Your answer is correct.

The correct answer is: 6

Question **30**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

In order to change the rotation (direction) of a three phase motor you must perform which one of the following procedures ?

Select one:
a.
Change the supply voltage to 208 V

b.
Change the supply voltage to 240 V

c.
Change the connection of any two phase conductors

d.
Change the neutral with any one phase conductor

Feedback

Your answer is correct.

The correct answer is: Change the connection of any two phase conductors

Question **31**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The branch circuit conductors and control equipment of each manually started motor shall be provided with overload protection when the motor is rated above which one of the following horsepower ?

Select one:
a.
1/6 horsepower

b.
1 horsepower

c.
3/4 horsepower

d.
1/2 horsepower

Feedback

Your answer is incorrect.

The correct answer is: 1 horsepower

Question **32**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The maximum allowable voltage drop on a feeder or branch circuit is which one of the following percentages ?

Select one:
a.
6 **%**

b.
3 **%**

c.
5 **%**

d.
4 **%**

Feedback

Your answer is incorrect.

The correct answer is: 3 **%**

Question **33**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the de-ration factor if there are 5 current carrying power conductors in a raceway ?

Select one:

a.
80 **%**

b.
60 **%**

c.
70 **%**

d.
100 **%**

Feedback

Your answer is incorrect.

The correct answer is: 80 **%**

Question **34**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the ampacity of three No 8 R90 copper conductors in a raceway if it passes through a room with an ambient temperature of 75 degree C ?

Select one:

a.
55 amps

b.
17**.**2 amps

c.
27.5 amps

d.
110 amps

Feedback

Your answer is correct.

The correct answer is: 27.5 amps

Question **35**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Does all interior metal gas piping which may become energized , required bonding to a grounding conductor ?

Select one:
a.
Only if there is no copper water service to bond to

b.
Yes in every case

c.
Only if there are di-electric fittings on the gas line

d.
Only if the gas line is copper tube

Feedback

Your answer is incorrect.

The correct answer is: Yes in every case

Question **36**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

For a multi-phase system having one wire common to all phases , the conductor to be grounded shall be :

Select one:
a.
the identified conductor

b.
the ungrounded conductor

c.
the identified neutral conductor

d.
the grounding conductor

Feedback

Your answer is incorrect.

The correct answer is: the identified neutral conductor

Question **37**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When relocating a furnace it is acceptable to extend the circuit wiring by using

Select one:
a.
An approved extension cord

b.
Approved wire connector without a junction box

c.
Approved wire connectors inside a junction box
d.
Any flexible cord that meets the ampacity rating

Feedback

Your answer is incorrect.

The correct answer is: Approved wire connectors inside a junction box

Question **38**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In using non-metallic sheathed cable it shall be secured by straps or other approved devices within _____________ mm of every box.

Select one:
a.
150 mm

b.
600 mm

c.
250 mm

d.
300 mm

Feedback

Your answer is incorrect.

The correct answer is: 300 mm

Question **39**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where conductors issue from armoured cable they shall be protected from abrasion by acceptable :

Select one:
a.

Wire nut connectors

b.
Electrical tape

c.
Locking nuts

d.
Bushings

Feedback

Your answer is incorrect.

The correct answer is: Bushings

Question **40**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the minimum distance NMSC must be kept from heating ducts ?

Select one:
a.
150 mm

b.
50 mm

c.
25 mm

d.
13 mm

Feedback

Your answer is incorrect.

The correct answer is: 25 mm

Question **41**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the minimum distance between the edge of a wooden member and a NMD90 cable running through it ?

Select one:
a.
50 mm

b.

32 mm

c.
25 mm

d.
13 mm

Feedback

Your answer is correct.

The correct answer is: 32 mm

Question **42**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When installing NMD90 on a wall what is the closest distance it can come to the floor level without protection ?

Select one:
a.
2.2 m

b.
1 m

c.
1.5 m

d.
2 m

Feedback

Your answer is incorrect.

The correct answer is: 1.5 m

Question **43**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A class 2 circuit shall have its output limited to :

Select one:
a.
50 V amperes

b.
100 V amperes

c.

1000 V amperes

d.
24 V amperes

Feedback

Your answer is correct.

The correct answer is: 100 V amperes

Question **44**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A 30 amp over-current device protecting a circuit will require which one of the following sizes of copper bonding conductor ?

Select one:
a.
14 AWG

b.
10 AWG

c.
16 AWG

d.
12 AWG

Feedback

Your answer is incorrect.

The correct answer is: 12 AWG

Question **45**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The maximum output rating for a class 2 transformer is which one of the following VA ?

Select one:
a.
40 VA

b.
100 VA

c.
1000 VA

d.

24 VA

Feedback

Your answer is incorrect.

The correct answer is: 100 VA

Question **46**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which one of the following types of materials shall not be used as an anchoring insert for securing electrical equipment to masonry or concrete ?

Select one:
a.
Lead alloy

b.
Plastic

c.
Wood

d.
Lead

Feedback

Your answer is correct.

The correct answer is: Wood

Question **47**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The installation of an electrical circuit for a forced air furnace in a single family dwelling shall comply with which of the following requirements ?

Select one:
a.
It shall be provided with a suitable disconnecting means

b.
It shall be obtained from a single branch circuit

c.
It shall have a calculated load which shall not exceed the ampere rating of the circuit

d.
It shall comply with all of the requirements

Feedback

Your answer is incorrect.

The correct answer is: It shall comply with all of the requirements

Question **48**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where nonmetallic sheathed cable is run in proximity to heating ducts, the transfer of heat to the cable shall be minimized by means of an air space of at least which one of the following distances ?

Select one:
a.
50 mm

b.
75 mm

c.
25 mm

d.
60 mm

Feedback

Your answer is incorrect.

The correct answer is: 25 mm

Question **49**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

All electric power for a heating unit and associated equipment shall be obtained from :

Select one:
a.
there are no restrictions as long as the conductor is Type LVT

b.
A single branch circuit for that purpose only

c.
A three wire conductor one for the furnace and the other for lights and plugs

d.
A single branch circuit supplying only extra lights and plugs in the furnace room

Feedback

Your answer is correct.

The correct answer is: A single branch circuit for that purpose only

Question **50**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The maximum supply voltage of a safety control circuit for a gas appliance shall not exceed

Select one:
a.
240 volts

b.
24 volts

c.
120 volts

d.
300 volts

Feedback

Your answer is correct.

The correct answer is: 120 volts

Question **51**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Overload protection for automatically started motors is not required when the motor is ____________ or less and part of an assembly equipped with other safety controls that protect the motor from damage due to stalled rotor current.

Select one:
a.
1/4 HP

b.
3/4 HP

c.
1/2 HP

d.
1 HP

Feedback

Your answer is incorrect.

The correct answer is: 1 HP

Question **52**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

A motor disconnect should be installed within what distance from a furnace ?

Select one:

a.

3 meters

b.

9 meters

c.

1 meters

d.

5 meters

Feedback

Your answer is correct.

The correct answer is: 9 meters

Question **53**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

How would you change the rotation of a three-phase motor ?

Select one:

a.

Change leg A with C

b.

Change leg B with C

c.

Change leg A with B

d.

All the options are correct

Feedback

Your answer is incorrect.

The correct answer is: All the options are correct

Question **54**

Correct

Mark 1.00 out of 1.00
Flag question

Question text

What is the nominal voltage found in a single family dwelling ?

Select one:
a.
115/230 volts

b.
120/240 volts

c.
150/300 volts

d.
110/220 volts

Feedback

Your answer is correct.

The correct answer is: 120/240 volts

Question **55**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the maximum voltage drop in a branch circuit supplying a furnace ?

Select one:
a.
5 %

b.
None of the option is correct

c.
4 %

d.
3 %

Feedback

Your answer is incorrect.

The correct answer is: 3 %

Question **56**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the minimum copper wire size and type to supply a 120 volts 1/2 HP single phase motor in a 25 degree C ambient temperature ?

Select one:
a.
No 12 RW 75

b.
No 14 TW 75

c.
No 14 TW

d.
No 12 NMD90

Feedback

Your answer is correct.

The correct answer is: No 14 TW 75

Question **57**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the circuit breaker amperage for a 120 volt 1/2 HP single phase motor in a 25 degree C ambient temperature ?

Select one:
a.
20 amps

b.
15 amps

c.
30 amps

d.
25 amps

Feedback

Your answer is incorrect.

The correct answer is: 25 amps

Question **58**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When an armour cable's conductors are exposed at the end of the cable for splicing they shall be protected from the sharp metal edges by which one of the following items ?

Select one:
a.
A connector

b.
A clamp

c.
An insulated bushing

d.
A dielectric fitting

Feedback

Your answer is incorrect.

The correct answer is: An insulated bushing

Electrical

What are the particles that make up an atom? Select all that apply.

Select one or more:
a. Proton
b. Neutron
c. Electron
d. Compound
e. Molecule

Feedback

Your answer is correct.

The correct answers are: Proton, Neutron, Electron

Question text

What determines the atomic number of an element?

Select one:
a. Number of protons in the nucleus
b.Number of neutrons in the nucleus
c. Number of electrons in the atom
d. Difference in the number of neutrons and electrons

Feedback

Your answer is correct.

The correct answer is: Number of protons in the nucleus

Question text

What causes the nucleus of an atom to have a positive charge?

Select one:
a. The neutrons
b. The electrons
c. Friction of the electrons
d. The Protons

Feedback

Your answer is incorrect.

The correct answer is: The Protons

Question text

Why does the electron remain in its orbit and not be pulled into the nucleus?

Select one:
a. The law of repelling
b. Centrifugal force
c. Opposing magnetic fields
d.The outward pull from other atoms

Feedback

Your answer is incorrect.

The correct answer is: Centrifugal force

Question text

What must occur for an atom to become negatively charged?

Select one:
a. More electrons than protons.
b. Less neutrons than protons
c. More protons than electrons
d. less electrons than neutrons

Feedback

Your answer is correct.

The correct answer is: More electrons than protons.

Question text

What is the name given to an atom with an unbalanced electrical charge?

Select one:
a. Quark
b. Hydrogen
c. Ion
d. Stray atom

Feedback

Your answer is incorrect.

The correct answer is: Ion

Question text

According to the “Electron Flow Theory”; in what direction does current flow in a circuit?

Select one:
a. Left to right
b. Negative to positive
c. Positive to negative
d. Right to left

Feedback

Your answer is incorrect.

The correct answer is: Negative to positive

Question text

What type of material will have the most amount of electrons in the outer shell?

Select one:
a. Semi-insulator
b. Conductor
c. Semi-conductor
d. Insulator

Feedback

Your answer is incorrect.

The correct answer is: Insulator

Question text

Identify three materials which are considered good conductors. Select all that apply.

Select one or more:
a. Ceramics
b. Copper
c. Aluminum
d. Rubber
e. Glass
f. Silver

Feedback

Your answer is correct.

The correct answers are: Silver, Copper, Aluminum

Question text

What is the best known conductor of electricity?

Select one:

a. Silver
b. Gold
c. Copper
d. Aluminum

Feedback

Your answer is correct.

The correct answer is: Silver

Question text

How many valence electrons would be found in an atom that is categorized as a semiconductor?

Select one:
a. 1
b. 8
c. 4
d. 2

Feedback

Your answer is incorrect.

The correct answer is: 4

Question text

Which unit of measure is used to describe “Electromotive Force”?

Select one:
a. Ohms
b. Voltage
c. Ampere
d. Watts

Feedback

Your answer is correct.

The correct answer is: Voltage

Question text

What does “I” indicate in Ohm’s Law?

Select one:
a.
Voltage
b.
Current
c.
Resistance

d.
Conductance

Feedback

Your answer is incorrect.

The correct answer is: Current

Question text

If the voltage is constant, but the resistance of the circuit is doubled, what would be the effect to current flow?

Select one:
a.
It would be reduced by one half
b.
It would be reduced by one quarter
c.
It would be doubled
d.
It would be quadrupled

Feedback

Your answer is correct.

The correct answer is: It would be reduced by one half

Question text

Calculate the current through a circuit if it has 50 ohms of resistance and the voltage drop is 24 volts?

Select one:
a.
0.48 A

b.
2.08

c.
0.48 ohm

d.
2.08 A

Feedback

Your answer is incorrect.

I=ER$I=ER$
I=24V50Ω$I=24V50\Omega$

I = 0.48 A

The correct answer is: 0.48 A

Question text

Calculate the milli-voltage drop through a circuit if it has 1.5 ohms of resistance and the current flow is 0.25 amps?

Select one:
a.
600

b.
6

c.
375

d.
0.375

Feedback

Your answer is correct.

E = I x R

E = 0.25 A x 1.5 ohm

E = 0.375 v or 375 mV

The correct answer is: 375

Question text

What would be the anticipated resistance of a circuit with an EMF of 120 volts and a current of 6 amps?

Select one:
a.
0.05 ohm

b.
20 ohm

c.
2 ohm

d.
0.5 ohm

Feedback

Your answer is correct.

R=EI$R=EI$
R=120V6A$R=120V6A$
R = 20 ohms

The correct answer is: 20 ohm

Question text

Which of the following materials has the highest resistance to current flow?

Select one:
a.
Silicon

b.
Aluminum

c.
Copper

d.
Glass

Feedback

Your answer is incorrect.

The correct answer is: Glass

Question text

Which of the following revolve around the nucleus of an atom?

Select one:
a.
Proton

b.
Electron
c.
Neutron

d.
Quark

Feedback

Your answer is incorrect.

The correct answer is: Electron

Question text

At what speed does the impulse of current flow through a conductor?

Select one:

a.
186,000 miles (299,792 kilometers) per second
b.
186,000 miles (299,792 kilometers) per hour
c.
60 miles (96.56 kilometers) per hour
d.
25 feet (7.62 meters) per second

Feedback

Your answer is incorrect.

The correct answer is: 186,000 miles (299,792 kilometers) per second

Which method or source of energy may be used to generate electricity?

Select one:
a.
Heat

b.
Friction

c.
All are correct
d.
Chemical reaction

Feedback

Your answer is correct.

The correct answer is: All are correct

Question text

Static electricity Answerisis not

normally a concern during humid weather.

Feedback

During humid weather the electrons can flow through the damp air and the objects will become electrically neutral.

Question text

What is the name of the effect that refers to heat being applied to two dissimilar metals or alloys that are joined together that results in current flow?

Select one:

a.
Setback effect

b.
Dissimilar effect

c.
Thermoelectric effect

d.
Bimetal effect

Feedback

Your answer is incorrect.

The correct answer is: Thermoelectric effect

Question text

What are the two practical applications for thermocouples? Select all that apply.

Select one or more:
a.
To provide light for maintenance purposes

b.
To generate extra low voltage
c.
To act as a temperature sensor

d.
To ignite pilot gas with hot surface

Feedback

Your answer is correct.

The correct answers are: To generate extra low voltage, To act as a temperature sensor

Question text

What action occurs when a battery produces electricity?

Select one:
a.
Triboelectric effect

b.
Electrochemistry
c.
Piezoelectricity

d.

Thermoelectric effect

Feedback

Your answer is correct.

Electrochemistry is produced when a liquid electrolyte is mixed with other materials to form a paste which allows communication between the anode and the cathode. The cell can then be used in any position and handled as though it was actually dry. Therefore a battery is sometime referred to as a dry cell.

The correct answer is: Electrochemistry

Flag question

Question text

What type of appliance is likely to have a piezoelectric igniter? Select all that apply.

Select one or more:
a.
Barbeque

b.
Patio heater

c.
Hot water tank
d.
Fireplace

Feedback

Your answer is partially correct.

You have correctly selected 2.
The correct answers are: Hot water tank, Patio heater, Fireplace, Barbeque

Question text

What are the three common types of materials used to make magnets? Select all that apply.

Select one or more:
a.
Copper

b.
Iron

c.
Nickle

d.

Aluminum

e.
Silver

f.
Cobalt

Feedback

Your answer is correct.

The two types of magnets are, Permanent Magnets and Electromagnets.

The correct answers are: Cobalt, Iron, Nickle

Question text

If the current is increased through a conductor, what effect would this have on the strength of the magnetic field surrounding the conductor?

Select one:
a.
It will fluctuate

b.
It will stay the same

c.
It will increase

d.
It will decrease

Feedback

Your answer is correct.

The correct answer is: It will increase

Question text

What method of producing voltage was discovered by Faraday that linked electricity and magnetism?

Select one:
a.
Three phase power

b.
Galvanic series

c.
Periodic table

d.
Electromagnetic induction

Feedback

Your answer is incorrect.

The correct answer is: Electromagnetic induction

Identify advantages that alternating current has over direct current. Select all that apply.

Select one or more:
a.
AC voltage can be changed with a transformer

b.
Generators naturally make AC power

c.
AC converts easily to DC

d.
Batteries naturally make AC power

e.
AC power is constant in its polarity

Feedback

Your answer is partially correct.

You have correctly selected 1.
The correct answers are: AC voltage can be changed with a transformer, Generators naturally make AC power, AC converts easily to DC

What are the two standard methods of connecting the single-phase winding of generators to form three-phase circuits?

Select one:
a.
Series and parallel

b.
Alternating and direct

c.
Wye and Delta
d.
Looped and gridded

Feedback

Your answer is incorrect.

The correct answer is: Wye and Delta

Question text

Which part of the light spectrum are CdS photo conductive cells most sensitive?

Select one:
a.
Visible light
b.
Ultra violet

c.
Plasma

d.
Infra red

Feedback

Your answer is incorrect.

The correct answer is: Visible light

Question text

What is done to produce a semi conductor with an unbalanced electrical charge for use in a Photovoltaic cell?

Select one:
a.
Connect to a light dependent resistor

b.
Enclosed in a photo tube

c.
Coated with oxidized silver

d.
Doped or chemically modified

Feedback

Your answer is incorrect.

The correct answer is: Doped or chemically modified

Question text

When referring to the transfer of electricity due to friction; what is the ranking system called that list the order in which materials gain or lose electrons?

Select one:

a.
Thermoelectric effect
b.
Galvanic series
c.
Triboelectric series
d.
Electrochemistry effect

Feedback

Your answer is incorrect.

The correct answer is: Triboelectric series

Question text

Which device in a combustion safety circuit makes use of the “Thermoelectric effect”?

Select one:
a.
Transformer
b.
Flame rollout switch
c.
High limit
d.
Thermocouple

Feedback

Your answer is correct.

The correct answer is: Thermocouple

What is the maximum voltage produced by a thermopile?

Select one:
a.
750 mV

b.
20 mV

c.
250 mV

d.
30 mV

Feedback

Your answer is correct.

The correct answer is: 750 mV

Question text

What is considered the positive terminal in a dry (voltaic) cell?

Select one:

a.
Electrolyte paste

b.
Zinc container

c.
Porous paper

d.
Carbon rod

Feedback

Your answer is incorrect.

The correct answer is: Carbon rod

Question text

What type of electricity is produced when pressure is applied to certain crystalline materials such as quartz?

Select one:

a.
Thermoelectricity

b.
Piezoelectricity
c.
Photoelectricity

d.
Electrochemistry

Feedback

Your answer is correct.

The correct answer is: Piezoelectricity

Question text

Which pole of a magnet do the lines of force enter?

Select one:

a.
North

b.
South

c.
West

d.
East

Feedback

Your answer is incorrect.

The correct answer is: South

Question text

What determines the strength of the magnetic field surrounding a conductor?

Select one:
a.
Voltage

b.
Amperage
c.
Resistance

d.
Temperature

Feedback

Your answer is incorrect.

The correct answer is: Amperage

Which rule is used to identify the direction of the magnetic lines of flux around a wire?

Select one:
a.
Seebeck Effect

b.
Right Hand Rule

c.
Bernoulli's Principle

d.
Left Hand Rule

Feedback

Your answer is correct.

The correct answer is: Left Hand Rule

Question text

What is required to generate electricity by electromagnetic induction?

Select one:

a.
Pressure

b.
Temperature

c.
Friction

d.
Motion

Feedback

Your answer is incorrect.

The correct answer is: Motion

Question text

Which of the following would not increase the voltage produced by electromagnetic induction ?

Select one:

a.
Increasing the strength of the magnetic field
b.
Increasing the temperature of the magnet and the coil
c.
Increasing the number of turns of wire in the coil
d.
Increasing the speed of the relative motion between the coil and the magnet

Feedback

Your answer is correct.

The correct answer is: Increasing the temperature of the magnet and the coil

Question text

Which device transfers the voltage from the slip rings in a generator to the conductors ?

Select one:

a.
Brushes

b.

Rotor

c.
Stator

d.
Armature

Feedback

Your answer is incorrect.

The correct answer is: Brushes

Question text

What is the typical cycle frequency for AC electrical power in North America?

Select one:
a.
30 Hertz

b.
120 Hertz

c.
10 Hertz

d.
60 Hertz

Feedback

Your answer is incorrect.

The correct answer is: 60 Hertz

Question text

How many degrees apart are the coils in a three phase generator?

Select one:
a.
120

b.
45

c.
90

d.
30

Feedback

Your answer is correct.

The correct answer is: 120

Question text

What is another name for a CdS photoconductive cell?

Select one:

a.
Light dependent resistor

b.
Light emitting diode

c.
Phototube

d.
Rectifier

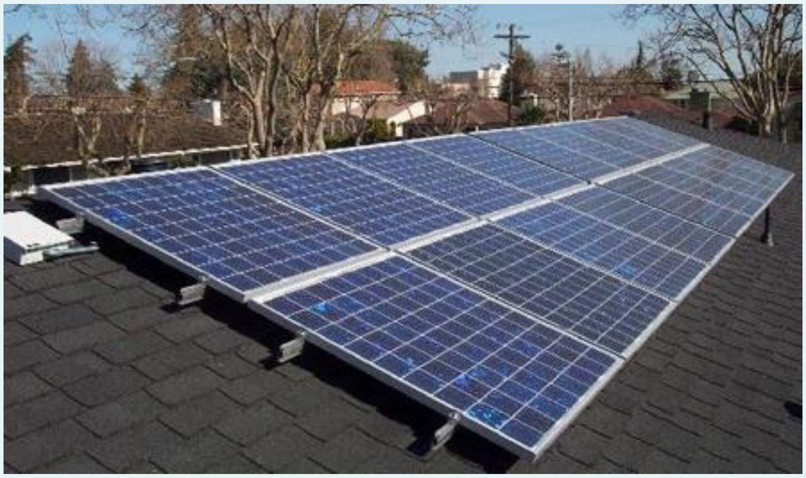
Feedback

Your answer is correct.

The correct answer is: Light dependent resistor

Question text

Identify the electrical generating device illustrated below.



Select one:

a.
Photovoltaic cell

b.
Photoconductive cell

c.
Photoemissive cell

d.
Thermoelectric cell

Feedback

Your answer is incorrect.

The correct answer is: Photovoltaic cell

Which electrical components should circuits typically contain? Select all that apply.

Select one or more:
a.
Switches

b.
Loads

c.
Transformers

d.
Resistors

e.
Diodes

f.
Power source

g.
Fuses

h.
Conductors

Feedback

Your answer is correct.

The correct answers are: Loads, Switches, Power source, Conductors

Question text

What are the two categories of electricity based on the direction of current flow?

Select one:
a.
Direct Current / Alternating Current
b.
Back Current / Swift Current

c.
North Current / South Current

d.
Up Current / Down Current

Feedback

Your answer is incorrect.

The correct answer is: Direct Current / Alternating Current

Question text

What is the purpose of a switch in an electrical circuit?

Select one:
a.
To protect circuit from over heating

b.
To reduce line voltage

c.
To provide a connection for a branch circuit

d.
To open or close (make or break) a circuit

Feedback

Your answer is correct.

The correct answer is: To open or close (make or break) a circuit

Question text

What are the three possible types of pathways for proper electrical circuits? Select all that apply

Select one or more:
a.
Short

b.
Series parallel

c.
Parallel

d.
Series
e.
Split

f.
Bypass

Feedback

Your answer is correct.

The correct answers are: Series, Parallel, Series parallel

Question text

What is the same through all parts of a series circuit with alternating current?

Select one:
a.
Direction of flow

b.
Loads

c.
Current

d.
Voltage

Feedback

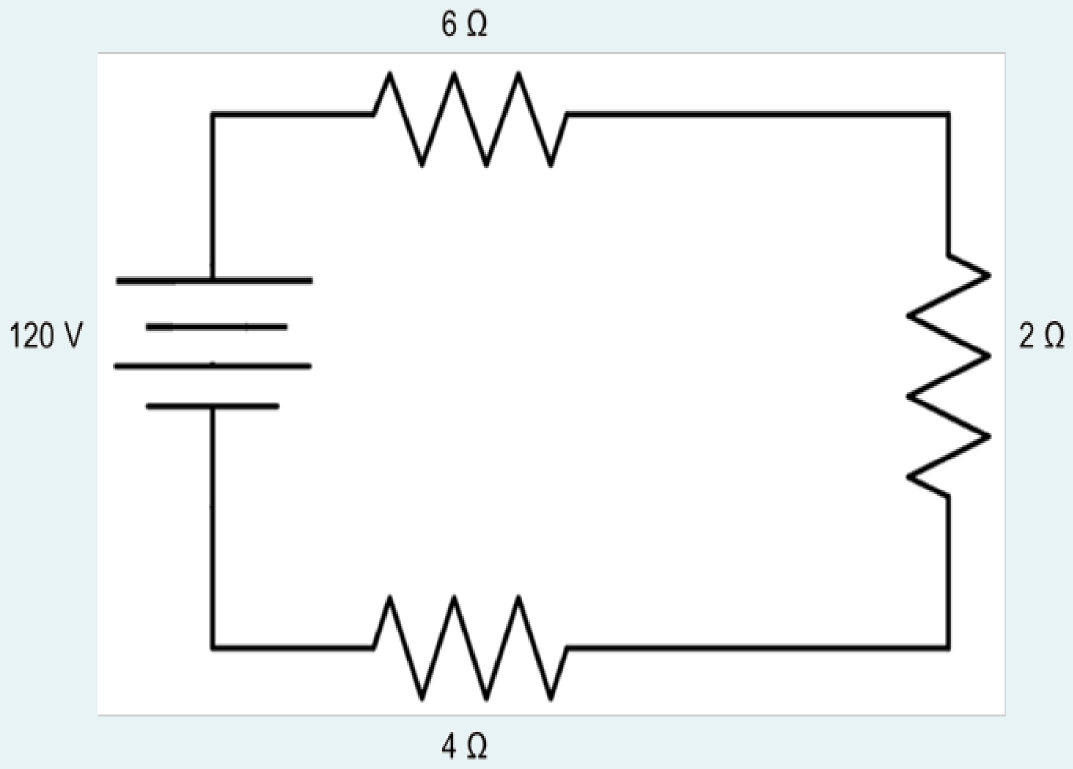
Your answer is incorrect.

Three rules or characteristics that must be considered when doing calculations involving series circuits are.
The total resistance of the circuit is equal to the sum of the resistances of the individual loads.
The current is the same through all parts of the circuit.
The total voltage applied to the circuit is equal to the sum of the voltage drops across the individual resistors.

The correct answer is: Current

Question text

Referring to the illustration below; calculate the total circuit resistance, circuit ampacity and the voltage drop through each load

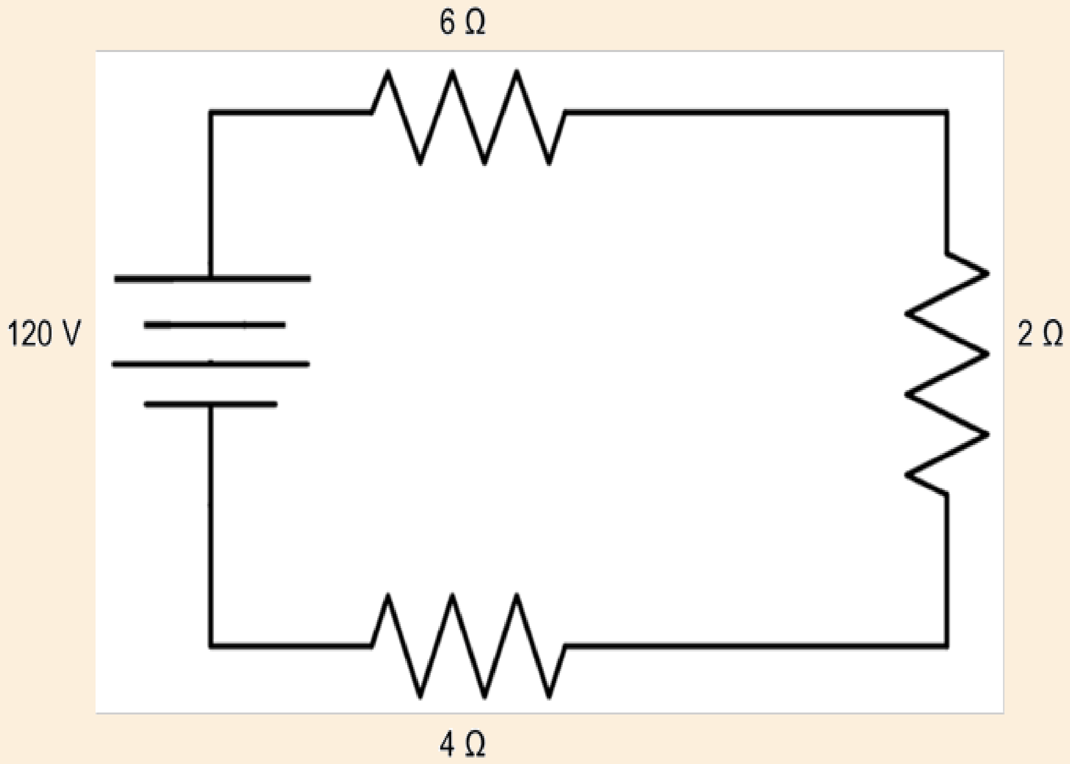


Feedback

Your answer is correct.

$\text{RTotal}= 6\Omega + 2\Omega + 4\Omega \quad \text{RTotal}=12\ \Omega$
$I=E/R \quad I= (120V / 12\Omega) \quad I=10A$
$E=I\times R \quad 60\ V=10\ A\times 6\ \Omega$
$20\ V=10\ A\times 2\ \Omega$
$40\ V=10\ A\times 4\ \Omega$

The correct answer is:
Referring to the illustration below; calculate the total circuit resistance, circuit ampacity and the voltage drop through each load



Total Circuit Resistance = [12 ohm]

Circuit Ampacity = [10 amps]

Voltage = [60 / 40 / 20 V]

Question text

What will be constant in a parallel circuit?

Select one:
a.
Current flow across each leg
b.Amperage at each load
c.Voltage drop across each load
d. Resistance at each load

Feedback

Your answer is incorrect.

The voltage across each path is the same

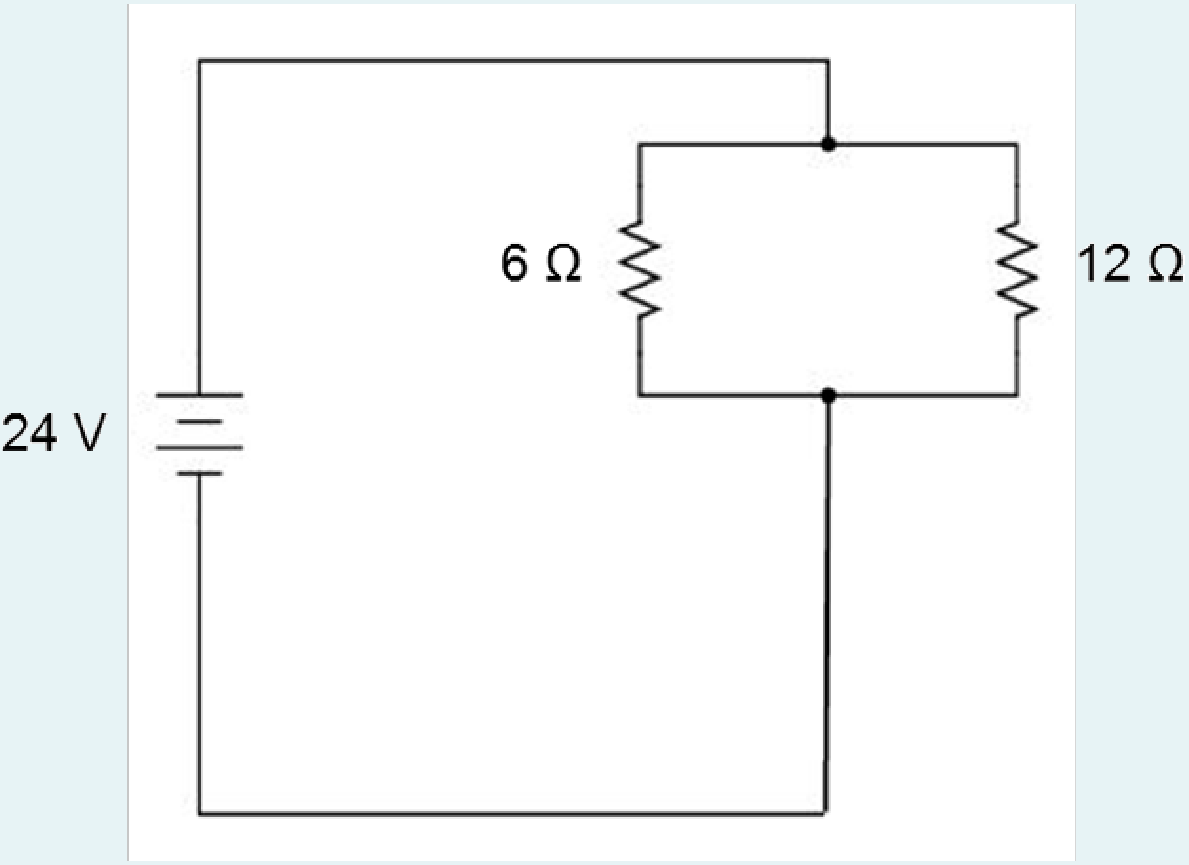
The total current is equal to the sum of the currents in the separate paths

The total resistance in a parallel circuit is always less than the resistance of any one of the individual resistances

The correct answer is: Voltage drop across each load

Question text

Referring to the illustration below; calculate the total circuit resistance, circuit ampacity and the voltage drop through each load.

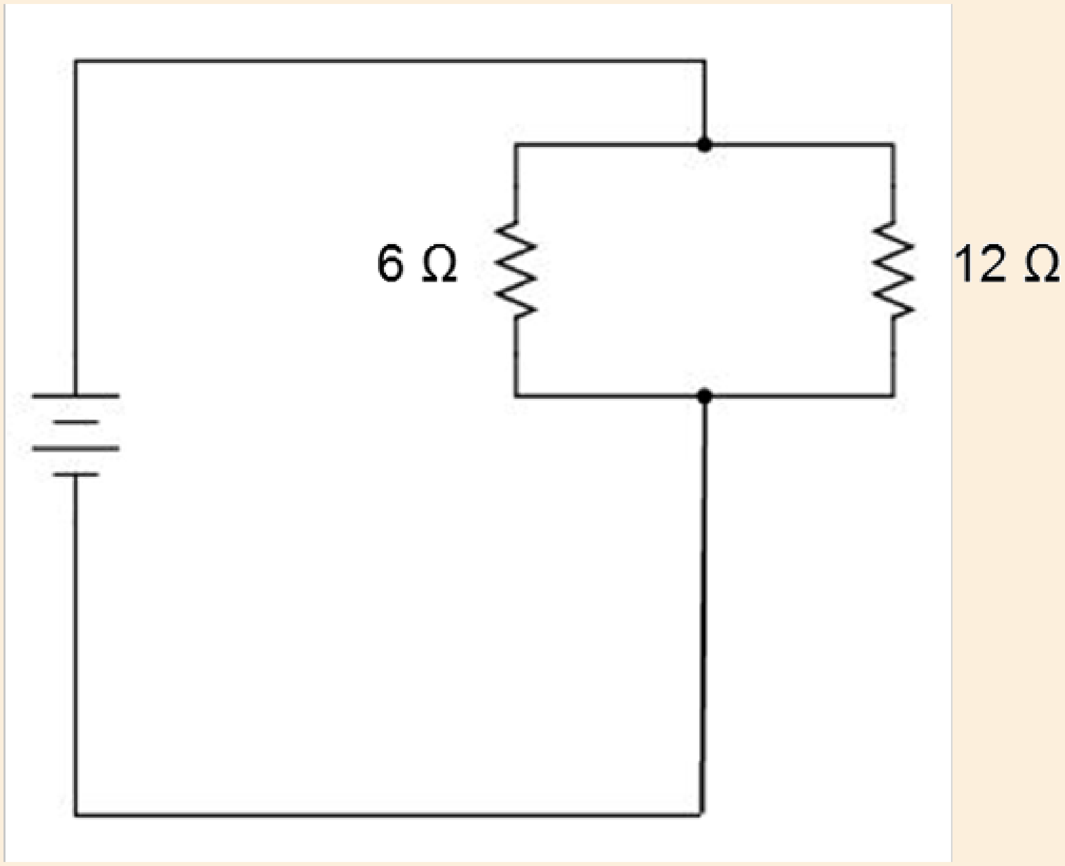


Feedback

Your answer is partially correct.

You have correctly selected 2.
1 / RTotal = (3 / 12Ω) RTotal= (12Ω / 3) RTotal = 4Ω
I= (E / R) 4A = (24V / 6Ω)   2A = (24V / 12Ω)
6A = 4A + 2A
E=I×R   24V = 4A × 6Ω   24V = 2A × 12Ω

The correct answer is: Referring to the illustration below; calculate the total circuit resistance, circuit ampacity and the voltage drop through each load.



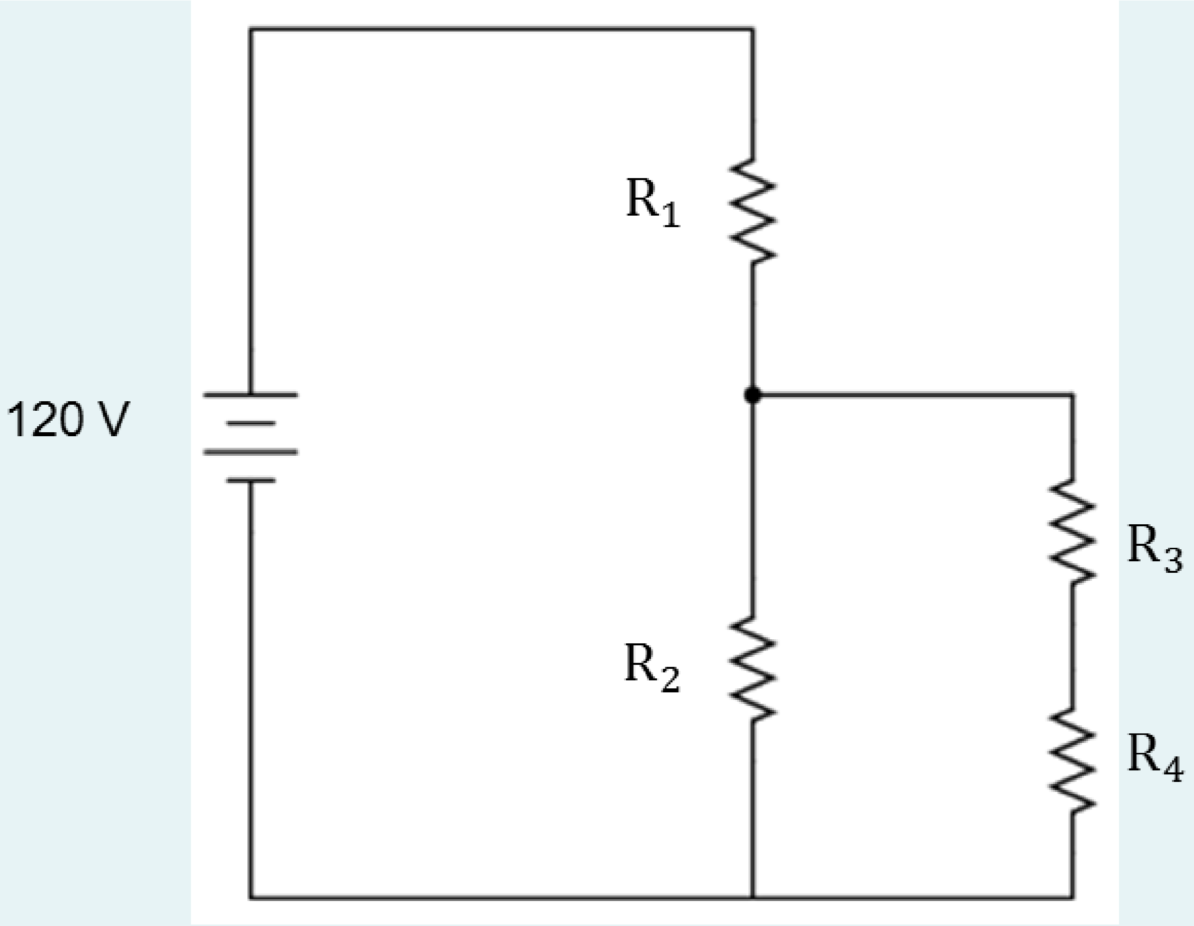
Total Circuit Resistance = [4 ohms]

Circuit Ampacity = [6 amps]

Voltage Drop = [24 v]

Question text

Referring to the illustration below; calculate the total circuit resistance, voltage drops and the ampacity through each load.



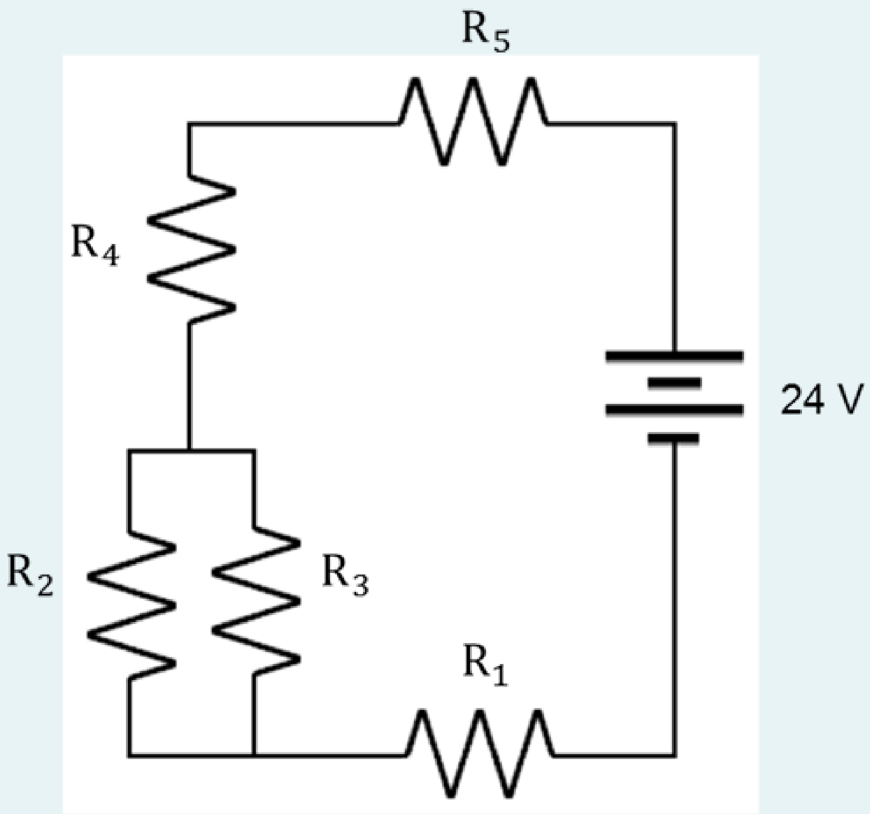
$R_1 = 10\ \Omega \quad R_2 = 10\ \Omega \quad R_3 = 5\ \Omega \quad R_4 = 5\ \Omega$

Fill in the table below

	R1	**R2**	**R3**	**R4**
Resistance	10 Ω	10 Ω	5 Ω	5 Ω
Current	8 A	4 A	4 A4	A
Voltage Drop	80 V	40 V	20 V	20 V

Question text

Referring to the illustration below; calculate the total circuit resistance, voltage drops and the ampacity.



$R_1 = 20\ \Omega \quad R_2 = 20\ \Omega \quad R_3 = 10\ \Omega \quad R_4 = 20\ \Omega \quad R_5 = 10\ \Omega$

Fill in the table below

Feedback

Question text

What is the definition for “Power”?

Select one:
a.The rate at which energy is expended,.
b. The amount of light emitted from a bulb
c. The ability of wire to carry amps
d. The voltage used in a circuit

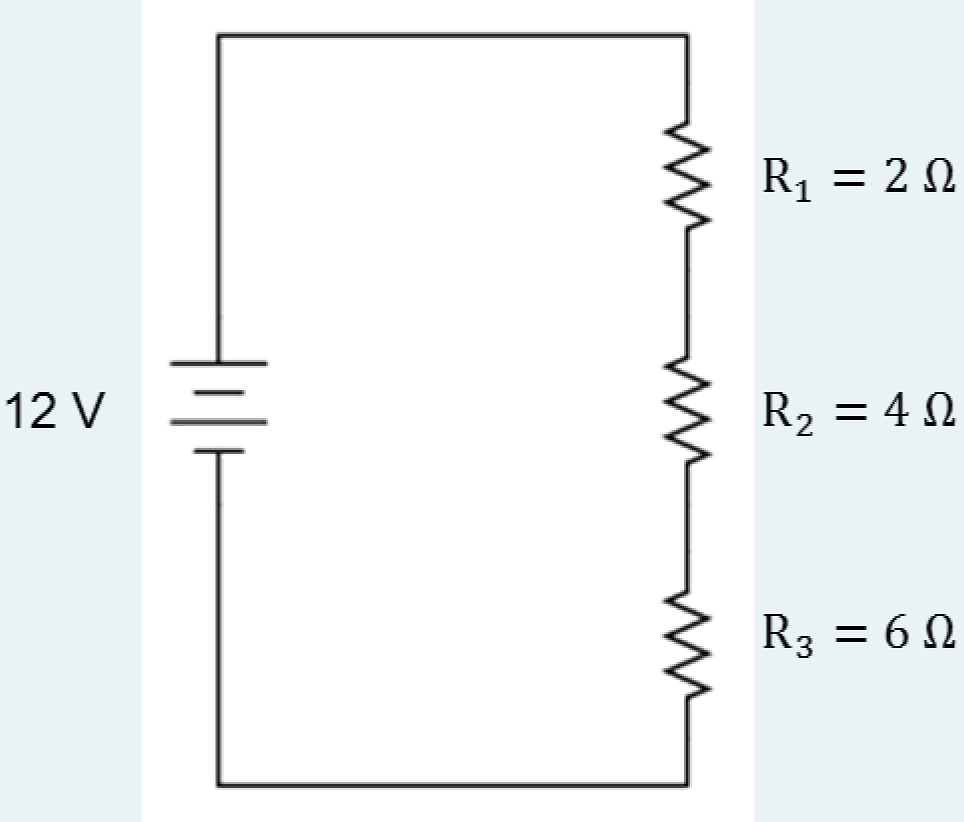
Feedback

Your answer is incorrect.

The correct answer is: The rate at which energy is expended,.

Question textQuestion text

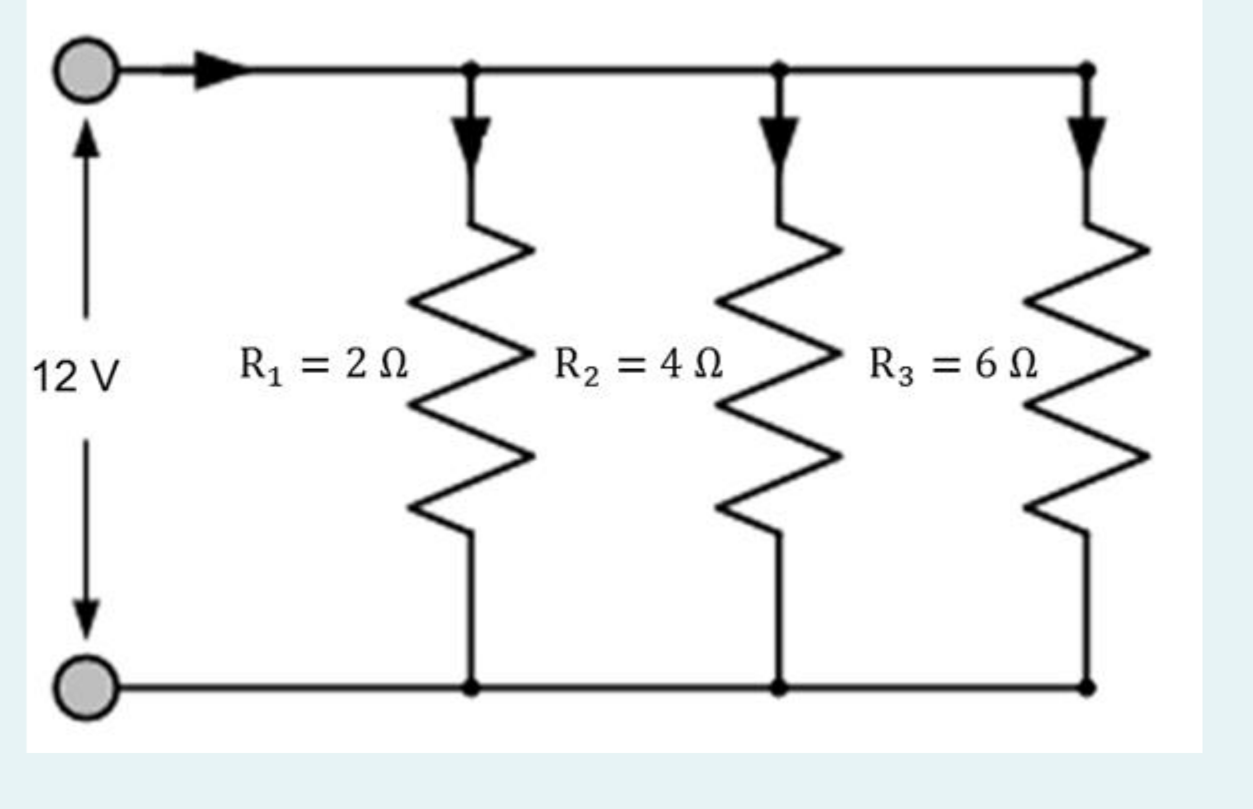
Referring to the illustration below; insert the correct information into the table provided.



Question **14**
Partially correct
Mark 7.00 out of 16.00
Flag question

Question text

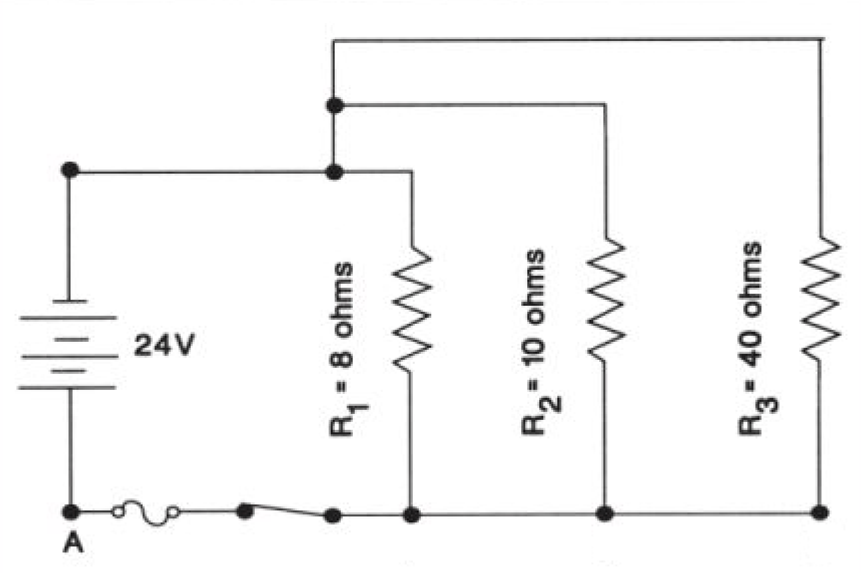
Referring to the illustration bellow, insert the correct information into the table below.



Fill in the table below

Question text

Referring to the illustration below; what would be the current flow through the conductor at point “A” ?



Select one:
a.
58 A

b.
2.3 A

c.
0.4 A

d.
6 A

Feedback

Your answer is incorrect.

1/R_Total =1/R_1 +1/R_2 +1/R_3

1/R_Total =1/(8 Ω)+1/(10 Ω)+1/(40 Ω)

1/R_Total =10/(40 Ω)

R_Total=(40 Ω)/10

R_Total=4 Ω

I=E/R   I=(24 V)/(4 Ω)   I=6 A

The correct answer is: 6 A

Question text

What would be the current flow through a circuit if it has 50 ohms of resistance and 25 volts ?

Select one:
a. 0.5 A
b. 1250 A
c. 125 A
d. 2 A

Feedback

Your answer is correct.

The correct answer is: 0.5 A

Question text

What is the unit measure for “P” when using the formula: ?

Select one:
a. Volts
b. Ohms
c. Amps

d. Watts

Feedback

Your answer is incorrect.

The correct answer is: Watts

Question text

Calculate the power consumed if a series circuit has 100 volts, 5 amps of current flow and 20 ohms of resistance:

Select one:
a. 50 W
b. 100 W
c. 10 W
d. 500 W

Feedback

Your answer is incorrect.

P=E×I P=100 V×5 A P=500 W

The correct answer is: 500 W

Question text

What is the term used to describe a device that uses energy of a power source to perform work?

Select one:
a. Conductor
b. Switch
c. Load
d. Generator

Feedback

Your answer is correct.

The correct answer is: Load

Question text

What would be the current flow through a 120 volt heating element if it has a resistance of 15 ohms?

Select one:
a. 8 A
b. 0.125 A
c. 25 A
d. 15 A

Feedback

Your answer is correct.

The correct answer is: 8 A

Question text

What alternates in an AC circuit?

Select one:
a. Current only
b. Voltage only
c. Power
d. Both current and voltage

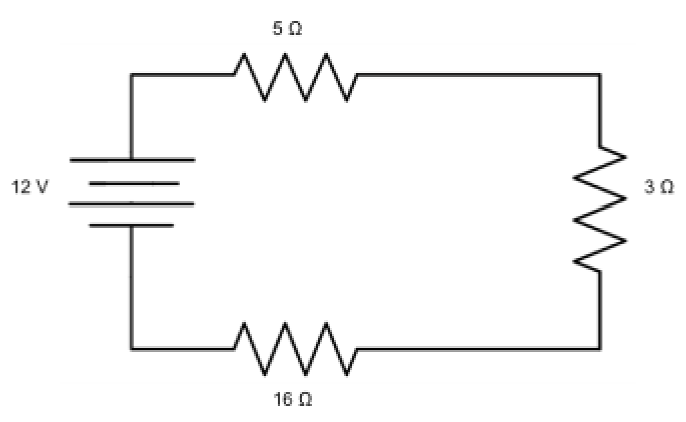
Feedback

Your answer is correct.

The correct answer is: Both current and voltage

Question text

Referring to the illustration below; what would be the anticipated voltage drop through the 3 ohms load?



Select one:
a. 8 V
b. 1.5 V
c. 0.5 V
d. 2.5 V

Feedback

Your answer is correct.

R total = R1 + R2 + R3

= 5 ohm + 3 ohm + 16 ohm

= 24 ohms

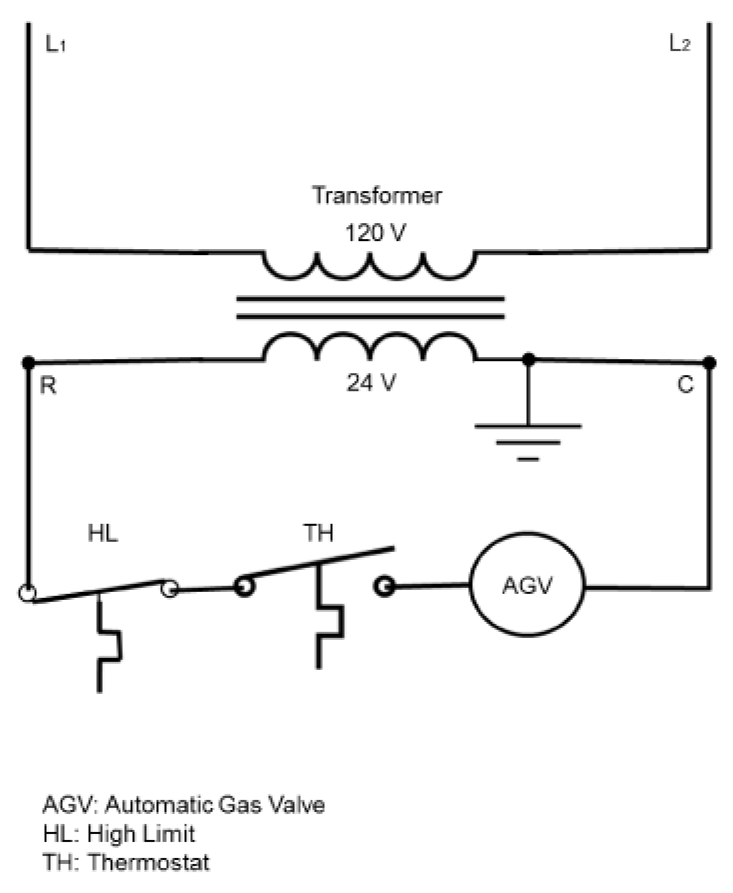
E = I x R

= 0.5 A x 3 ohm

The correct answer is: 1.5 V

Question text

Referring to the illustration below; how much power is required for the automatic gas valve if it has a resistance of 120 Ω?



AGV: Automatic Gas Valve
HL: High Limit
TH: Thermostat

Select one:
a. 24 W
b. 120 W
c. 4.8 W
d. 0.2 W

Feedback

Your answer is incorrect.

The correct answer is: 4.8 W

Question text

How much current would flow through a 120 watt light bulb if it is being supplied with 120 volts?

Select one:
a. 2 A
b. 0.5 A
c. 0.25 A
d. 1 A

Feedback

Your answer is correct.

The correct answer is: 1 A

Which of the following formulas could be used to calculate power if the known values are ampacity and resistance?

Select one:
a.
P×R−−−−−√*P*×*R*
b.
E x R

c.
I$_2$×R*I*2×*R*
d.
I x R

Feedback

Your answer is incorrect.

The correct answer is: I$_2$×R

Why is high voltage more dangerous to human shock than low voltage?

Select one or more:
a.
High voltage over comes resistance

b.
Low voltage lasts only a split second

c.
Low voltage blows breakers

d.
High voltage cant be grounded

Feedback

Your answer is correct.

The correct answer is: High voltage over comes resistance

Question text

Why is water dangerous when working around electrical power?

Select one:
a.
Water decreases the resistance of the body
b.
Water gives a path for stray current to the ground

c.
Water increases the voltage

d.
Water reacts chemically with some types of conductors

Feedback

Your answer is correct.

The correct answer is: Water decreases the resistance of the body

Question text

What is the first thing that should be done when an un-conscious shock victim is discovered?

Select one:
a.
Check for breathing

b.
Check for a pulse

c.
Start CPR

d.
Determine if the cause of shock is still present

Feedback

Your answer is correct.

The correct answer is: Determine if the cause of shock is still present

Question text

List the factors that effect the severity of electrical shock to a body?

Select one:
a.
The heart muscles cannot move and severe burns
b.
Ventricular cavitation occurs within the body

c.
The heart beats at an excessive rate and muscles begin to vibrate

d.
The body goes into a Cardiopulmonary state

Feedback

Your answer is incorrect.

The correct answer is: The heart muscles cannot move and severe burns

Question text

What is the lowest amperage during electrical shock that will likely result in cardiac arrest?

Select one:
a.
above 200 amps

b.
above 1 amp

c.
above 200 mA

d.
above 2 amps

Feedback

Your answer is incorrect.

The correct answer is: above 200 mA

Question text

What are variables that effect the severity of electrical shock on the body? select all that apply.

Select one or more:
a.
Amount of sweat or moisture on the skin

b.
Path of current through the body

c.
Duration of exposure to the current

d.
Temperature of the surrounding atmosphere

Feedback

Your answer is partially correct.

You have correctly selected 2.
The correct answers are: Path of current through the body, Amount of sweat or moisture on the skin, Duration of exposure to the current

What is the voltage found in a residential distribution panel?

Select one:
a.
24/120 three-phase

b.
120/240 volt single-phase
c.
24/120 single-phase

d.
120/240 three-phase

Feedback

Your answer is correct.

The correct answer is: 120/240 volt single-phase

Question text

What are types of Solder-less connections? Select all that apply.

Select one or more:
a.
Crimp-on
b.
Insulated cap

c.
Thread less

d.
Press blade

e.

Push in

Feedback

Your answer is partially correct.

You have correctly selected 1.
The correct answers are: Crimp-on, Insulated cap

Question text

What is used to identify the size and capacity of insulated-cap connectors?

Select one:
a.
Marked with wire gauge size

b.
Color coded

c.
Marked with gauge size and/or color coded
d.
Amperage stamp on end

Feedback

Your answer is incorrect.

The correct answer is: Marked with gauge size and/or color coded

Question text

Where must most line voltage connections occur?

Select one:
a.
In a junction box
b.
In a wall

c.
In an electrical panel

d.
In a light fixture

Feedback

Your answer is incorrect.

The correct answer is: In a junction box

Question text

What type of conduit material **can not** come in contact with concrete/cement?

Select one:
a.
Galvanized steel

b.
Poly vinyl chloride

c.
Thermoplastic

d.
Aluminum

Feedback

Your answer is incorrect.

The correct answer is: Aluminum

Question text

What type of conduit should be used for connecting to a motor?

Select one:
a.
RMT

b.
EMT

c.
PVC

d.
LFMC

Feedback

Your answer is incorrect.

The correct answer is: LFMC

Question text

Which type of circuit breaker is used for 240 V circuits?

Select one:
a.
Bonded
b.
Rubber jacket
c.
Auto reset
d.

Double pole

Feedback

Your answer is correct.

The correct answer is: Double pole

Which of the following connections may not be soldered?

Select one:
a.
240 V hot wires
b.
Switch poles
c.
Bonding conductors
d.
240V neutral wires

Feedback

Your answer is correct.

The correct answer is: Bonding conductors

Question text

Which is the minimum size color code Twist-on Wire Connector that should be used to connect 2 – 14 AWG conductors?

Select one:
a.
Grey

b.
Orange

c.
Red

d.
Blue

Feedback

Your answer is incorrect.

The correct answer is: Orange

Question text

What does the abbreviation EMT indicate?

Select one:

a.
Engineered molded tubing
b.
Engineered metal tubing
c.
Electrical metallic tubing
d.
Electrically molded tubing

Feedback

Your answer is correct.

The correct answer is: Electrical metallic tubing

What would the power rating be for a 5 amp DC single phase motor designed to operate at 12 volts?

Answer:

Feedback

Mechanical Energy & Power

Electrical power is the rate at which work is done in an electric circuit in a given time.

Watts (W) are used to measure power.

1 watt is equal to 1 volt multiplied by 1 amp.

Watts = Volts x Amps

Watts = 12V x 5 amps

The correct answer is: 60

Question text

If a AC single phase motor had a power rating of 1125 watts, what would the motor be rated in horsepower?

Answer:

Feedback

Horsepower

One horse can lift 330lbs/100ft/min or (55Olbs/ft/sec) which is equivalent to 750 watts of power or 1.0 horsepower in the international system (SI) and the heat equivalent of 2550BTUs (British thermal units) or 4500 kilograms/meters /minute.

Therefore:

Watts ÷ 750watts/hp = HP

1125W ÷ 750W/HP = 1.5 HP

The correct answer is: 1.5

Question text

Select the type of single phase motor that best matches the description below.

A low horsepower, low torque motor that does not use a commutator or capacitor. This motor uses metal rings (typically copper) wrapped around the stator to put the induced alternating magnetic field out of phase. Copper is used for the rings as it has a different resistance when compared to the typical stator construction of steel. It is a self starting motor that has basic construction.

a.
Permanent Split Phase

b.
Split Phase

c.
Shaded Pole

d.
Capacitor Start

Feedback

Your answer is correct.

The shaded pole motor, like all induction motors has a stator and a rotor. The stator carries a main winding and a shaded winding know as the shaded coil. The shaded coil is usually a solid copper ring wrapped around a portion of the stators metal case. A shaded pole motor may have more than one shaded pole. Due to the difference in resistance between the copper shaded ring and the stators metal construction (usually some form of iron) the induced current (present in both metals) creates a difference in polarity within the stator's magnetic field. The shade pole can not be removed from the circuit due to magnetic field being generated from induced current. Shaded pole motors are self starting, low torque, low efficiency, and designed with low power ratings. Shaded pole motors are cheap to make and reliable due to their very basic construction.

The correct answer is:
Shaded Pole

Question text

Select the type of single phase motor that best matches the description below.

This type of motor has high starting torque as well as high running torque. They are good motors for use in applications that require frequent starting and stopping, such as refrigerator pumps. They contain capacitors, 2 windings, and a centrifugal switch.

a.
Capacitor Start Capacitor Run

b.
Shaded Pole

c.
Split-Phase

d.
Capacitor Start

Feedback

Your answer is correct.

Capacitor start-capacitor run motor is much like the capacitor start motor in that it has two windings, a start winding (auxiliary winding) in series with a capacitor and centrifugal switch and a main winding. The purpose of the start winding is the same, to get the motor running and add extra starting torque. The difference is that there is a capacitor in parallel with the start winding that does not get remove from the circuit, only the start capacitor gets remove when the motor get up to 75% of rated speed. The purpose of the capacitor that stays in the circuit is to keep the starting winding active and out of phase with the main winding. Keeping both windings in use will increase torque while the motor is running. This motor is good for higher inertia loads and where frequent starting and stopping are required. It is used to in pumps present in refrigerators, air conditioners, compressor tools and many loads of this nature.

The correct answer is:
Capacitor Start Capacitor Run

Question text

Select the type of single phase motor that best matches the description below.

This type of motor uses 2 windings, a start winding and a run winding. The start winding is removed from the circuit once the motor gets up to speed through the use of a centrifugal switch. Starting of the motor is achieved by using different gauge wire for the windings and starting torque is low. The different gauge windings gives them a different resistance and therefore puts their magnetic fields out of phase and the rotor begins to spin. Once the velocity of the rotor reaches a certain threshold the start winging is removed from the circuit and the rotor continues to spin and "chase" the magnetic field being generated by the run winding.

a.
Capacitor Start

b.
Shaded Pole

c.
Permanent Split Capacitor

d.
Split-Phase

Feedback

Your answer is correct.

The split phase motor typically uses a single phase 120 volt power supply and has a rating of 1 HP or less. Split phase motors are used in applications where starting torque requirements are low. Common applications of split phase motors include: fans, blowers, pumps, office machines, and tools, such as small saws or drill presses. The split phase motor has a start and run winding. Both windings are energized when the motor is started. When the motor reaches about 75% of its rated full load speed, the start winding is disconnected from the circuit by a centrifugal switch.

Split-phase motors are also known as resistance phase motors. This is because they have additional resistance added to the start winding. Due to the main winding having a different resistance when compared to the starting winding it will put each winding out of phase, creating a rotational magnetic field and force the rotor to start moving. This starting winding will give the initial push to start the rotation, and the main winding will keep the motor running.

The correct answer is:
Split-Phase

Question text

The graphic below shows DCACNC current powering a motor through the use of a mechanical commutator.

Feedback

Your answer is correct.

The correct answer is:
The graphic below shows [DC] current powering a motor through the use of a mechanical commutator.

Question text

The term Hertz is used when making reference to which of the following?

Select one:
a.
Frequency

b.
Current

c.
Amperage

d.
Voltage

Feedback

Your answer is correct.

Frequency

Frequency is how often something repeats. In alternating current, the frequency is the number of times a sine wave completes a cycle going from positive to negative repeating in a given time period (seconds). It is measured in hertz. Hertz is the number of cycles per second (one hertz is equal to one cycle per second). The more cycle that occurs per second, the higher the frequency. In north America the frequency of the voltage and current delivered to homes and business is 60Hz.

The correct answer is: Frequency

The graphic below shows a frequency of Answer Hz.

Feedback

Frequency

Frequency is how often something repeats. In alternating current, the frequency is the number of times a sine wave completes a cycle going from positive to negative repeating in a given time period (seconds). It is measured in hertz. Hertz is the number of cycles per second (one hertz is equal to one cycle per second). The more cycle that occurs per second, the higher the frequency. In north America the frequency of the voltage and current delivered to homes and business is 60Hz.

The number of complete cycles in the graphic is 7 cycles elapsed over a period of 1 second; therefore, 7Hz.

The correct answer is: 7

Question text

____________ is the measure of the force required to cause rotation.

Select one:
a.
Pressure

b.
Power

c.
Torque

d.
Force

Feedback

Your answer is correct.

Torque

Torque is the measure of the force that can cause an object to rotate. The more torque a motor produces the more work it can do. The torque output of a motor is the amount of rotational force that the motor develops and is measured in Newton-meters (Nm). The torque and speed relationship are inversely proportional since the rated output power of a motor is fixed value. As output speed increases, the available output torque decreases proportionately. The same holds true if the output speed decreases, the available output torque increases proportionately.

The correct answer is: Torque

Question text

The most common motor used in the HVAC industry is the _________ motor.

Select one:

a.
Capacitor Start Capacitor Run

b.
Shaded Pole

c.
Permanent-Split Capacitor Motor

d.
Split-Phase

Feedback

Your answer is incorrect.

Permanent-split capacitor motor is much like the capacitor start motor in that it has two windings, a start winding (auxiliary winding) with a capacitor in series and the main winding. The purpose of the start winding with the capacitor is to create a rotating magnetic field. The difference is that the capacitor and the start winding remain in the circuit when the motor gets up to rated speed. The advantage being higher efficiency and higher power output. Another difference worth noting is no starting mechanism (centrifugal switch) is needed and the rotation is reversible. Special applications include fans and blowers, air conditioners, coolers, furnaces, unit heaters, roof ventilators, dehumidifiers, garage door openers, and other applications that more torque. ***The permanent-split capacitor motor is by far the most common motor encountered in the HVAC industry.***

The correct answer is: Permanent-Split Capacitor Motor

Question text

__________ is a measure of how fast energy is applied or consumed in a given amount of time.

Select one:
a.
Amperage

b.
Torque

c.
Power

d.
Pressure

Feedback

Your answer is incorrect.

Mechanical Energy & Power

Electrical power is the rate at which work is done in an electric circuit in a given time.

Watts (W) are used to measure power.

1 watt is equal to 1 volt multiplied by 1 amp.

Watts = Volts x Amps

One watt is equal to one joule of work done per second.

Watt = Joule/second

The correct answer is: Power

Which of the following is **not** a type of Single phase motor?

Select one:
a.
2 Pole

b.

3 Pole

c.
4 Pole

d.
Split-phase

Feedback

Your answer is correct.

The correct answer is: 3 Pole

Question text

What type of single-phase motor does not use any powered windings or starters to get the rotor spinning.

Select one:
a.
Shaded pole motors

b.
Split phase motors

c.
PSM motor

d.
Capacitor Motors

Feedback

Your answer is incorrect.

The correct answer is: Shaded pole motors

Question text

What type of Single phase motor is considered to have a high starting torque?

Select one:
a.
Capacitor-start motor

b.
Split-phase motor

c.
Capacitor start-capacitor run motor

d.
Shaded pole motor

Feedback

Your answer is correct.

Capacitor Start Capacitor Run

Capacitor start-capacitor run motor is much like the capacitor start motor in that it has two windings, a start winding (auxiliary winding) in series with a capacitor and centrifugal switch and a main winding. The purpose of the start winding is the same, to get the motor running and add extra starting torque. The difference is that there is a capacitor in parallel with the start winding that does not get remove from the circuit, only the start capacitor gets remove when the motor get up to 75% of rated speed. The purpose of the capacitor that stays in the circuit is to keep the starting winding active and out of phase with the main winding. Keeping both windings in use will increase torque while the motor is running. This motor is good for higher inertia loads and where frequent starting and stopping are required. It is used to in pumps present in refrigerators, air conditioners, compressor tools and many loads of this nature.

The correct answer is: Capacitor start-capacitor run motor

Question text

A device used to alter the electrical power being delivered to a motor for the purpose of speed control is called a VFD. What does VFD stand for?

a.
Voltage Fluctuating Device

b.
Variable Flow Device

c.
Variable Frequency Device

d.
Voltage Frequency Device

Feedback

Your answer is correct.

The correct answer is:
Variable Frequency Device

Question text

An ECM is used to take alternating current and convert it to a fluctuating direct current at a rate that can be altered. What does ECM stand for?

a.
Elevated Capacity Motor

b.

Electronic Capacitor Motor

c.
Electronically Controlled Motor

d.
Electronically Commutated Motor

Feedback

Your answer is correct.

Electronically Commutated Motors (ECM)

An ECM controller converts alternating current single phase power to direct current power and then pulses that current at a desired frequency. This allows control over the motors speed in a similar way to a VFD. ECMs are a very efficient way to vary the speed of a motor and they offer some advantages over VFD controlled motors. They are low heat devices, create low startup/shutoff velocities, and quiet while in operation. These advantages are typically applied to HVAC systems and can benefit filter performance, noise, wear on the system, temperature accuracy/spill over, and longevity.

The correct answer is:
Electronically Commutated Motor

Question text

What type of protection method would be necessary to prevent unwanted starting of a motor after a power failure?

a.
Thermal protection

b.
Low voltage protection

c.
Rotational Protection

d.
Overcurrent protection

Feedback

Your answer is incorrect.

Low Voltage Protection

Low voltage protection (LVP) is primarily used after an interruption in power is experienced. After a power outage it can be important to ensure that some electric motors do not power back on before certain conditions are met, this is where LVP is utilized. This is accomplished through relays and switches that would be part of the motors wiring.

The correct answer is:
Low voltage protection

What statement best describes VFD operation?

a.
A VFD is a type of electric motor that can vary the power rating depending on the current load on the motor. It will always have the rated horsepower no matter what load is placed on the motor.

b.
A VFD alters the frequency of AC power to an electric motor. This can alter the speed of the electric motor as a motors speed is directly related to the delivered frequency.

c.
A VFD converts alternating current to pulsing direct current before sending power to the electric motor.

d.
A VFD is a protection device used in all electric motors that can prevent burnout and overheating.

Feedback

Your answer is correct.

Variable Frequency Drive

Variable frequency drive (VFD) is a motor controller placed between the motor and power supply that can change the frequency (Hz) and voltage of the power supplied to an electric motor. Using a VFD will allow you to control the motors speed, power, start velocity, and stop velocity. These devices can be used to save power, match motors to their applications, and even extend the usable life of a motor. VFDs can be integrated into newer smart devices and controllers to use intelligent applications of motor technology. Usually you will find VFD on fans, pumps, and compressors where different operating speeds are a requirement.

The correct answer is:
A VFD alters the frequency of AC power to an electric motor. This can alter the speed of the electric motor as a motors speed is directly related to the delivered frequency.

Question text

Select the advantages an electronically commutated motor might have over a motor powered by a variable frequency drive.

a.
More powerful

b.
Low heat output

c.
Reduced power consumption

d.
Longer life

e.
Quiet operation

f.
Low start and stop velocities

Feedback

Your answer is partially correct.

You have selected too many options.

Electronically Commutated Motors (ECM)

An ECM controller converts alternating current single phase power to direct current power and then pulses that current at a desired frequency. This allows control over the motors speed in a similar way to a VFD. ECMs are a very efficient way to vary the speed of a motor and they offer some advantages over VFD controlled motors; ***they are low heat devices, create low startup/shutoff velocities, and are quiet while in operation***. These advantages are typically applied to HVAC systems and can benefit filter performance, noise, wear on the system, temperature accuracy/spill over, and longevity.

The correct answers are:
Low start and stop velocities,

Quiet operation,

Low heat output

What is used to start the rotation of a three phase induction motor as compared to a single phase motor?

Select one:
a.
Higgs accelerator

b.
Start winding

c.
Electromagnetic induction
d.
Start Capacitor

Feedback

Your answer is correct.

The correct answer is: Electromagnetic induction

Question text

In reference to motors, the transfer of energy from a magnetic field into a conductor is known as what?

Select one:
a.
electromagnetic induction

b.
Synchronous phasing

c.
Inverse induction

d.
Centrifugal force

Feedback

Your answer is correct.

The correct answer is: electromagnetic induction

Question text

How many Watts of power would be the result of having 5 Amps being pushed by 120 Volts?

Select one:
a.

0.042

b.
600

c.
24

d.
360

Feedback

Your answer is correct.

Power is measured in watts (volts x amps) and a minus voltage times a minus current equals a positive watt.

The correct answer is: 600

Question text

The _________ is a series of stationary, conductive windings offset electrically at 120 degrees to initiate current flow.

Select one:
a.
Rotor

b.
Stator

c.
Inducer

d.
Motor

Feedback

Your answer is incorrect.

The correct answer is: Stator

Question text

The _________ is a series of conductive copper bars in high-grade silicon steel formed into a spinning drum.

Select one:
a.
Inducer

b.
Rotor

c.
Capacitor

d.
Stator

Feedback

Your answer is correct.

The correct answer is: Rotor

Question text

The rate of the rotating magnetic field in the stator is called the _________ speed.

Select one:
a.
Adjustable

b.
Synchronous

c.
Slip

d.
Variable

Feedback

Your answer is correct.

The correct answer is: Synchronous

Question text

______________ is measured as a percentage difference between the synchronous and rated speed.

Select one:
a.
Shift

b.
Torque

c.

RPM

d.
Slip

Feedback

Your answer is incorrect.

The correct answer is: Slip

Question text

Match the following with the best description of the motor application.

Typically programmed for a single purpose at the factory.	Answer 1Choose...VFD MotorECM MotorRMS Motor
Can be programmed at any time to do whatever job is required.	Answer 2Choose...VFD MotorECM MotorRMS Motor

Feedback

Your answer is incorrect.

The correct answer is: Typically programmed for a single purpose at the factory. → ECM Motor, Can be programmed at any time to do whatever job is required. → VFD Motor

Which of the following motors has the ability to convert an AC voltage to DC voltage for its operation?

a.
ECM

b.
Split capacitor

c.
Single phase induction

d.
Shaded pole

Feedback

Your answer is incorrect.

The correct answer is:
ECM

Question text

The three-phase power curve consists of three separate single-phase curves evenly separated. How far apart are these curves spaced?

a.

90 degrees

b.
60 degrees

c.
45 degrees

d.
120 degrees

Feedback

Your answer is correct.

The correct answer is:
120 degrees

Question text

For the same size, the single-phase induction motors develop about ______% of the output as that of three-phase induction motors.

a.
60

b.
30

c.
75

d.
50

Feedback

Your answer is correct.

The correct answer is:
50

Question text

Identify the image shown.

a.
Rectified DC

b.
Filtered DC

c.
Modified AC

d.
Modified DC

Feedback

Your answer is incorrect.

The correct answer is:
Filtered DC

Which of the following is a common type of single-phase motor?

a.
AC-DC motor

b.
Induction motor

c.
Synchronous motor

d.
Multi-phase motor

Feedback

Your answer is incorrect.

The correct answer is:
Induction motor

Question text

What is the starting method commonly used for single-phase motors?

a.
Capacitor start

b.
ECM

c.
VFD

d.
Delta starter

Feedback

Your answer is incorrect.

The correct answer is:
Capacitor start

Question text

In a split-phase single-phase motor, what is the purpose of the auxiliary winding?

a.
To provide a phase shift for starting

b.
To regulate the speed

c.
To reverse the direction of rotation

d.
To increase the voltage

Feedback

Your answer is incorrect.

The correct answer is:
To provide a phase shift for starting

Question text

Which of the following would be a typical application of a shaded-pole single-phase motor?

a.
E-vehicles

b.
Residential HVAC Fan

c.
Industrial pumps

d.
High-torque applications

Feedback

Your answer is incorrect.

The correct answer is:
Residential HVAC Fan

Question text

What is the purpose of a run capacitor in a capacitor-start,capacitor-run single-phase motor?

a.
To reverse the motor direction as a result of a phase shift

b.
To help start the motor

c.
To improve the power factor

d.
To provide additional torque during running

Feedback

Your answer is incorrect.

The correct answer is:
To provide additional torque during running

Question text

What is the purpose of the centrifugal switch in a split-phase single-phase motor?

a.
To control the torque

b.
To control the speed

c.
To disconnect the start winding once running

d.
To regulate the voltage

Feedback

Your answer is incorrect.

The correct answer is:
To disconnect the start winding once running

Question text

Which component is responsible for creating a rotating magnetic field in a single-phase induction motor?

a.
Capacitor

b.
Rotor

c.
Stator

d.
Commutator

Feedback

Your answer is incorrect.

The correct answer is:
Stator

Question text

What is the primary disadvantage of a split-phase motor?

a.
Limited speed control

b.
Time varying frequencies
c.
Inefficient operation

d.
Low starting torque

Feedback

Your answer is incorrect.

The correct answer is:
Low starting torque

Question text

In a 3-phase motor, what is the phase angle between the voltages of each phase?

a.
90 degrees

b.
60 degrees

c.
180 degrees
d.
120 degrees

Feedback

Your answer is incorrect.

The correct answer is:
120 degrees

Question text

In a 3-phase motor, how is the direction of rotation reversed?

a.
By changing the frequency

b.
By changing the voltage

c.
By switching any two phase connections

d.
By reversing the stator windings

Feedback

Your answer is incorrect.

The correct answer is:
By switching any two phase connections

What is the significance of the term ***"slip"*** in a 3-phase induction motor?

a.
It indicates a fault in the stator windings

b.
It refers to the rotor slipping out of position

c.
It is the difference between synchronous speed and rotor speed

d.
It measures the efficiency of the motor

Feedback

Your answer is incorrect.

The correct answer is:
It is the difference between synchronous speed and rotor speed

Question text

What happens to the torque in a 3-phase induction motor as the load increases?

a.

Reverses direction

b.
Increases

c.

Remains constant

d.
Decreases

Feedback

Your answer is incorrect.

The correct answer is:
Decreases

Electrical Circuits are opened or closed by the use of a __________?

Select one:
a.
Motor

b.
Power source

c.
Switch

d.
Transformer

Feedback

Your answer is correct.

The correct answer is: Switch

A switch that has one pole and one contact is known as _________?

Select one:
a.
DPDT

b.
SPDT

c.
4PDT

d.
SPST

Feedback

Your answer is incorrect.

The correct answer is: SPST

Question text

If a pole can be thrown in one of two positions it is known as a ________?

Select one:

a.

SPDT

b.

DPDT

c.

Thermal switch

d.

Pressure Switch

Feedback

Your answer is correct.

The correct answer is: SPDT

Question text

If a household electric appliance requires 240 volts to operate, how is that done?

Select one:

a.

By connecting to the 240 volt supply at the service panel

b.

By plugging it in to a single gang box

c.

Magic

d.

By connecting to a mechanically joined 120 volt supplies

Feedback

Your answer is correct.

The correct answer is: By connecting to a mechanically joined 120 volt supplies

Question text

All wiring diagrams are drawn to show circuits in what state?

Select one:

a.

Operating

b.

Closed

c.
At Rest

d.
Energized

Feedback

Your answer is incorrect.

The correct answer is: At Rest

What type of switch uses a concave or convex disk of metal to open or close contacts due to changes in temperature?

Select one:
a.
Flame roll-out Switch

b.
Flow Switch

c.
Thermostat

d.
Pressure Switch

Feedback

Your answer is incorrect.

The correct answer is: Flame roll-out Switch

Question **2**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A type of switch that is constructed to close a set of contacts on a temperature rise, is an example of a _________?

Select one:
a.
Flow Switch

b.
High Limit Switch

c.
Aquastat

d.
Fan Switch

Feedback

Your answer is incorrect.

The correct answer is: Fan Switch

Question **3**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What type of devices operate on the principle of different metals expanding at different rates, is commonly used in ________?

Select one:
a.
Thermostats

b.
Light Switches

c.
Pressure switches

d.
Thermometers

Feedback

Your answer is correct.

The correct answer is: Thermostats

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Thermostats use a type of liquid in a bulb to bridge two contacts and close circuits. What is the liquid used?

Select one:
a.
Silver

b.
Condensate

c.
Mercury

d.
H2O

Feedback

Your answer is correct.

The correct answer is: Mercury

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The rate of response in a thermostat can be improved by the addition of what component?

Select one:
a.
Pressure Switches

b.
A Heat Anticipator

c.
Electrical Connections

d.
A Supplemental Thermostat

Feedback

Your answer is correct.

The correct answer is: A Heat Anticipator

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The numbers on a heat anticipator are an indication of current draw in ________?

Select one:
a.
Watts

b.
Ohms

c.
Volts

d.
Amps

Feedback

Your answer is correct.

The correct answer is: Amps

Question **7**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The “R” Terminal in a thermostat is for what purpose?

Select one:
a.
24 Volt supply

b.
Connection to the gas valve

c.
Ground Connection

d.
Two stage Cooling

Feedback

Your answer is correct.

The correct answer is: 24 Volt supply

Question **8**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The process of following a set of variables and determining whether corrections need to be made is used in what type of equipment?

Select one:
a.
A Motor

b.

A Liquid Crystal Display

c.
A Manual Thermostat

d.
A Programmable Thermostat

Feedback

Your answer is incorrect.

The correct answer is: A Programmable Thermostat

Question **9**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Residential heat pump thermostats have a terminals to energize _______ when is cooling mode.

Select one:
a.
The Absorption Pump

b.
The Tridicator

c.
The Ammonia Proportioner

d.
The Reversing Valve

Feedback

Your answer is incorrect.

The correct answer is: The Reversing Valve

Question **10**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In a heat pump thermostat the second stage heating contact controls______?

Select one:
a.
The limit control

b.
The refrigeration cycle

c.
The cooling mode

d.
The operation of supplemental heat

Feedback

Your answer is incorrect.

The correct answer is: The operation of supplemental heat

Question **11**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How can a programmable thermostat be overridden in run mode?

Select one:
a.
By taking the unit off the wall

b.
By changing the wiring

c.
By adjusting the mechanical linkage

d.
By depressing the + or – button on the control

Feedback

Your answer is correct.

The correct answer is: By depressing the + or – button on the control

Question **12**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Programmable thermostats typically have how many preset schedule types?

Select one:
a.
4

b.
3

c.
2

d.
1

Feedback

Your answer is incorrect.

The correct answer is: 4

Question **13**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What type of thermostat uses a type of gas between two metallic disks?

Select one:
a.
Gas thermostat

b.
Bellows Thermostat

c.
Metallic disk type thermostat

d.
Link and level thermostat

Feedback

Your answer is incorrect.

The correct answer is: Bellows Thermostat

Question **14**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In a combination Fan/ High limit control the fan switch is located on which side of the unit, if looking at the face.

Select one:
a.

Right Side

b.
Left side

c.
Bottom

d.
Top

Feedback

Your answer is incorrect.

The correct answer is: Left side

Question **15**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In the combination Fan/ High limit control why would a gas fitter need to remove the brass jumper?

Select one:
a.
To supply the fan switch with 24 volt power

b.
To supply the high limit with 24 volt power

c.
It is recommended to do so

d.
To attach a manual switch to the high limit

Feedback

Your answer is incorrect.

The correct answer is: To supply the high limit with 24 volt power

Question **16**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Aquastats are used in what type of appliance?

Select one:

a.
Hot Water Boilers

b.
Furnaces

c.
Heat Pumps

d.
Thermostats

Feedback

Your answer is incorrect.

The correct answer is: Hot Water Boilers

Question **17**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What are the methods for mounting aquastats? (select all that apply)

Select one or more:
a.
Direct mounted in an immersion well

b.
Remote Bulb

c.
Glued in place

d.
Surface Mounted

e.
Soldered in place

f.
Tied with rope

g.
Wired connection

Feedback

Your answer is correct.

The correct answers are: Remote Bulb, Surface Mounted, Direct mounted in an immersion well

Pressuretrols are used in what type of system?

Select one:
a.
Water boiler systems

b.
Hot water tanks

c.
Furnaces

d.
Steam Boiler systems

Feedback

Your answer is incorrect.

The correct answer is: Steam Boiler systems

Question **2**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Another name for the piping (siphon loop) installed from the boiler to the pressuretrol and pressure gauge is called________?

Select one:
a.
A spool

b.
A pipe

c.
A pigtail

d.
A loop de loop

Feedback

Your answer is incorrect.

The correct answer is: A pigtail

Question **3**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

When a high limit pressuretrol reaches the set point limit, does the switch open or close its contacts?

Select one:

a.
Close

b.
Open

Feedback

Your answer is correct.

The correct answer is: Open

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

When burners systems operate with gas pressures that exceed 0.5 Psig what is required to be installed according to the CSA B149.3?

Select one:

a.
Temperature switches

b.
Pressure gauge

c.
A manual shutoff

d.
Gas pressure switches

Feedback

Your answer is correct.

The correct answer is: Gas pressure switches

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

According the CSA B 149.3, if the pressure drops below 50% of the appliance regulator set point, the low pressure normally open switch is required to______?

Select one:
a.
Open

b.
Remain energized

c.
Nothing is required

d.
Close

Feedback

Your answer is correct.

The correct answer is: Open

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

In general, an air proving switch is of what basic design?

Select one:
a.
A single pole

b.
A double pole

c.
A manually actuated push button

d.
A time delay switch

Feedback

Your answer is correct.

The correct answer is: A single pole

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When the air supply is controlled mechanically, before ignition the blower must do what?

Select one:

a.
Nothing

b.
Trip the high limit

c.
Drain the condensate

d.
Pre purge the combustion chamber

Feedback

Your answer is incorrect.

The correct answer is: Pre purge the combustion chamber

Question **8**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What type of switch does the image show?

Select one:

a.
Flow switch

b.
Normally open pressure switch

c.
Normally closed pressure switch

d.
Double pole switch

Feedback

Your answer is correct.

The correct answer is: Normally closed pressure switch

What are two types of L.W.C.O. switches?

Select one:
a.
Float type and Probe type

b.
Steam type and Hot water type

c.
Fan switch and Probe type

d.
Float type and Cold Water type

Feedback

Your answer is correct.

The correct answer is: Float type and Probe type

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

In conjunction with steam boilers how many automatic low water cut offs must be installed?

Select one:
a.
2

b.
3

c.
4

d.
None

Feedback

Your answer is correct.

The correct answer is: 2

Question **3**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If a low water cutoff is attached to the boiler by pipe and fittings what must not be places upstream of the L.W.C.O?

Select one:

a.
PRV’s

b.
Globe Valves

c.
Shutoff valves of any type

d.
Check valves

Feedback

Your answer is incorrect.

The correct answer is: Shutoff valves of any type

Question **4**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

To facilitate cleaning of the lines with L.W.C.O.’s what shall be placed at every right angle turn?

Select one:

a.
A 90°

b.
Plugs

c.
A cross fitting

d.
A tee

Feedback

Your answer is correct.

The correct answer is: A cross fitting

Question **5**

Incorrect

Mark 0.00 out of 1.00
Flag question

Question text

In a hot water heating boiler, the installed L.W.C.O. must be equipped with what device?

Select one:
a.
A pressure sensor

b.
An automatic reset

c.
A manual reset switch

d.
A ball valve

Feedback

Your answer is incorrect.

The correct answer is: A manual reset switch

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

At what height are L.W.C.O.'s designed to be installed, according to manufacturer's literature?

Select one:
a.
Anywhere

b.
Above the lowest safe water level

c.
Above the highest safe water level

d.
Above the boiler

Feedback

Your answer is correct.

The correct answer is: Above the lowest safe water level

Question **7**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

When attaching L.W.C.O.'s to a hot water boiler with pipe what is the minimum size of pipe that can be used?

Select one:

a.
3″ NPS

b.
2″ NPS

c.
1″ NPS

d.
3/4″ NPS

Feedback

Your answer is correct.

The correct answer is: 1″ NPS

Question **8**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

When testing a L.W.C.O. in a hot water boiler install, does the system need to be drained?

Select one:

a.
Yes

b.
No

Feedback

Your answer is correct.

The correct answer is: No

Question **9**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

What type of switch is indicated by the following symbol?

Select one:

a.
Normally closed temperature switch

b.
Normally open float switch

c.
Normally closed float switch

d.
Normally open pressure switch

Feedback

Your answer is correct.

The correct answer is: Normally open float switch

Can flow switches be used on water lines only?

Select one:

a.
Yes

b.
No

c.
Maybe

d.
Don't know

Feedback

Your answer is correct.

The correct answer is: No

Question **2**

Incorrect

Mark 0.00 out of 1.00
Flag question

Question text

A flow switch designed to sense air movement is known as?

Select one:
a.
A rudder switch

b.
An air switch

c.
A boat switch

d.
A sail switch

Feedback

Your answer is incorrect.

The correct answer is: A sail switch

The operation and input of manual and automatic commands to run and monitor motors and devices can be done with_________?

Select one:
a.
Magic

b.
USB

c.
Infrared communication

d.
Network protocols

Feedback

Your answer is correct.

The correct answer is: Network protocols

Question **2**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Data is transmitted through a variety of different types of physical connections? (Identify three types)

Select one or more:
a.
Serial

b.
Wi-Fi

c.
Bluetooth

d.
Cellular

e.
RJ11

f.
USB

Feedback

Your answer is correct.

The correct answers are: Serial, RJ11, USB

Question **3**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

The acronym BACnet stands for?

Select one:
a.
Biometric Access Control Network

b.
Building Automation and Communications Network

c.
Bank of America Corporate Network

d.
Building Automation and Control Network

Feedback

Your answer is correct.

The correct answer is: Building Automation and Control Network

Question **4**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

The LON is a Protocol primarily designed to be used with what type of mechanical system?

Select one:

a.
HVAC

b.
Plumbing

c.
Elevator

d.
Sprinklers

Feedback

Your answer is correct.

The correct answer is: HVAC

Question **5**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

PLC programming software can be used on a variety of different manufacturer's hardware?

Select one:

a.
True

b.
False

Feedback

Your answer is correct.

The correct answer is: False

Question **6**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

PLC Programming software can be modified using a graphical interface, this interface is known as?

Select one:

a.
RMI (Running Man Interface)

b.
HMI (Human Machine Interface)

c.
CCI (Chevy chase index)

d.
RFI (Request further Information)

Feedback

Your answer is correct.

The correct answer is: HMI (Human Machine Interface)

Question **7**

Correct

Mark 1.0 out of 1.0

Flag question

Question text

A user defined PLC program might include pausing points, another name for a pause in a program is?

Select one:

a.
Stop

b.
Initiating program

c.
Interrupt

d.
Function

Feedback

Your answer is correct.

The correct answer is: Interrupt

Question **8**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

Universal serial bus (USB) connectors that can transmit data in both directions are known by which type?

Select one:
a.
Type C

b.
Type A

c.
Type D

d.
Type B

Feedback

Your answer is correct.

The correct answer is: Type C

Question **9**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

USB Cords typically have four wires running the length to the ends, two wires are used for power and the other set of wires is used for _____?

Select one:
a.
Bluetooth transfer

b.
Grounding and Bonding

c.
Communications

d.
Data

Feedback

Your answer is incorrect.

The correct answer is: Data

Question **10**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

RS-232 serial connections use a specific type of coding to transmit data, the voltages were sent as positive and negative voltages, which produces what type of communication language?

Select one:
a.
Pascal

b.
Binary

c.
DOS

d.
C++

Feedback

Your answer is correct.

The correct answer is: Binary

Question **11**
Incorrect
Mark 0.0 out of 1.0
Flag question

Question text

Serial Connections are able to communicate from controller to controller?

Select one:
a.
True

b.
False

Feedback

Your answer is incorrect.

The correct answer is: False

Question **12**

Correct
Mark 1.0 out of 1.0
Flag question

Question text

The abbreviation RJ means which of the following?

Select one:
a.
Registered Jack

b.
Random Jack

c.
Royal Jack

d.
Rick James

Feedback

Your answer is correct.

The correct answer is: Registered Jack

Question **13**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

The typical RJ45 Cord has how many wires passing through it?

Select one:
a.
8 wires

b.
4 wires

c.
6 wires

d.
12 wires

Feedback

Your answer is correct.

The correct answer is: 8 wires

Question **14**

Correct
Mark 1.0 out of 1.0
Flag question

Question text

Networking cable is of what type of RJ value?

Select one:

a.
45

b.
21

c.
65

d.
11

Feedback

Your answer is correct.

The correct answer is: 45

Question **15**
Correct
Mark 1.0 out of 1.0
Flag question

Question text

What application(s) could utilize the Z-wave communication system?

a.
Wired communication for home heating and or security systems.

b.
Wireless communication for home heating and or security systems.

c.
Wireless communication for programing appliance control boards.

d.
Wired communications for snapchat protocols.

Feedback

Your answer is correct.

The correct answer is:
Wireless communication for home heating and or security systems.

Outdoor resets adjust the boiler water supply temperature based on the ambient outdoor temperature?

Select one:
a.
False

b.
True

Feedback

Your answer is incorrect.

The correct answer is: True

Question **2**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A Non-condensing boiler typically operates in the temperature range of ______?

Select one:
a.
140°F – 170°F

b.
160°F – 190°F

c.
135°F – 185°F

d.
120°F – 150°F

Feedback

Your answer is incorrect.

The correct answer is: 160°F – 190°F

Question **3**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The average savings using an outdoor reset controller is 1% for every 5°F reduction in boiler temperature, how much percentage reduction would be granted at a 35°F temperature drop?

Select one:
a.
7% Savings

b.
3% Savings

c.
1% Savings

d.
5% Savings

Feedback

Your answer is correct.

The correct answer is: 7% Savings

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

To promote longevity of a boiler, manufacturers recommend that boilers not be allowed to _____?

Select one:
a.
Short cycle

b.
Turn off

c.
Run constantly

d.
Long cycle

Feedback

Your answer is correct.

The correct answer is: Short cycle

Question **5**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Boilers that are set to operate in a pre-defined sequence of rotating operation is a definition of ______?

Select one:
a.
Rotating Control

b.
Multiple Control

c.
Staging Control

d.
Cascading Control

Feedback

Your answer is incorrect.

The correct answer is: Cascading Control

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

In multiple boiler configurations the outdoor reset is connected to which boiler?

Select one:
a.
The Furthest Boiler

b.
The Second Boiler

c.
Any Boiler

d.
The Managing Boiler

Feedback

Your answer is correct.

The correct answer is: The Managing Boiler

Question **7**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

When connecting multiple boilers to a terminal block, how are the boilers wired to the low voltage terminals?

Select one:
a.
In order

b.
In Parallel

c.
In Series

d.
In Series/ Parallel

Feedback

Your answer is correct.

The correct answer is: In Parallel

Question **8**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When connecting multiple boilers to terminal blocks using 22 gauge wire, what is the maximum length of wire that can be run?

Select one:
a.
100 Feet

b.
110 Feet

c.
200 Feet

d.
150 Feet

Feedback

Your answer is incorrect.

The correct answer is: 100 Feet

Question **9**
Correct

Mark 1.00 out of 1.00
Flag question

Question text

When connecting multiple boilers to terminal blocks and the wire length exceeds the recommended maximum length, what condition is created in the wiring? An excessive amount of __________?

Select one:
a.
Amperage

b.
Power

c.
Voltage

d.
Resistance

Feedback

Your answer is correct.

The correct answer is: Resistance

Question **10**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Use the image to answer the following question.

The abbreviation RL stands for what?

Select one:
a.

Rolling Terminal

b.
Regulated terminal

c.
Right Line

d.
Relay

Feedback

Your answer is incorrect.

The correct answer is: Relay

Question **11**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Use the image to answer the following question.

Which terminals are used as part of the flow verification circuit?

Select one:
a.
Terminals 3-4

b.
Terminals 1-2

c.
Terminals 5-6

d.
Terminals 13-14

Feedback

Your answer is incorrect.

The correct answer is: Terminals 3-4

Question **12**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Use the image to answer the following question.

Terminals 7-8 are used as boiler water sensor inputs what device is connected to those terminals to send a signal to the controller?

Select one:

a.
Transparent sensor

b.
Thermistor

c.
Transformer

d.
Thermometer

Feedback

Your answer is incorrect.

The correct answer is: Thermistor

Question **13**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

A thermistor is another name for what device?

Select one:
a.
A Relay

b.
An Outdoor Sensor

c.
A Transformer

d.
A Terminal

Feedback

Your answer is correct.

The correct answer is: An Outdoor Sensor

Question **14**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Use the following image to answer the question.

If a resister is attached to terminals 10-11 what is the resistance value of the connected resister when used as a thermistor input?

Select one:
a.
5 Ohms

b.
20 Ohms

c.
10 Ohms

d.
15 Ohms

Feedback

Your answer is incorrect.

The correct answer is: 10 Ohms

Question **15**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Use the following image to answer the question.

In the pump sequencing mode, the terminals 23 -25 are used for the supply power for which pump?

Select one:
a.
The controller

b.
The main system pump

c.
The auxiliary thermistor

d.
The backup/standby system pump

Feedback

Your answer is incorrect.

The correct answer is: The backup/standby system pump

What are the two components necessary for combustion safety circuit utilizing a standing pilot?

Select one:
a.
High limit and fan switch

b.
Gas valve

c.
Thermopile

d.
Thermocouple and a safety shutoff valve

Feedback

Your answer is correct.

The correct answer is: Thermocouple and a safety shutoff valve

Question **2**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In the combustion safety circuit what is the purpose of a thermocouple?

Select one:
a.
Limit switch

b.
Heat generator

c.
Power supply

d.
POC Detector

Feedback

Your answer is incorrect.

The correct answer is: Power supply

Question **3**
Correct

Mark 1.00 out of 1.00
Flag question

Question text

Approximately how many volts will a thermocouple generate?

Select one:
a.
40 – 50 millivolts

b.
20 – 30 millivolts

c.
25 – 45 volts

d.
20 – 30 volts

Feedback

Your answer is correct.

The correct answer is: 20 – 30 millivolts

Question **4**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A thermocouple is made of two dissimilar metals joined together at one end, what is the term used for that connection?

Select one:
a.
Bimetal strip

b.
Cold junction

c.
Magnetic field

d.
Hot junction

Feedback

Your answer is incorrect.

The correct answer is: Hot junction

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

In a thermocouple, the temperature difference between the hot junction and the cold junction produces the greatest amount of voltage, how much of the thermocouple's hot junction should be heated?

Select one:
a.
5/8" – 1"

b.
3/8" – 1/2"

c.
1/2" – 3/4"

d.
1/8" – 3/8"

Feedback

Your answer is correct.

The correct answer is: 3/8" – 1/2"

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

According to the CSA B149.3 code, thermocouples are limited to combustion safety circuits that have standing pilots, and to what input BTU rating?

Select one:
a.
1 200 000 Btu

b.
1 000 000 Btu

c.
400 000 Btu

d.
500 000 Btu

Feedback

Your answer is correct.

The correct answer is: 400 000 Btu

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Thermocouples used in low volume appliances in conjunction with a gas that has a specific gravity greater than 1.0, shall have a maximum flame failure response time of?

Select one:
a.
90 seconds

b.
40 seconds

c.
120 seconds

d.
20 seconds

Feedback

Your answer is incorrect.

The correct answer is: 20 seconds

Question **8**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Another type of device that operates similarly to a thermocouple is known as?

Select one:
a.
Pilot Generator

b.
DC Generator

c.
Pilot Flame

d.
Thermocouple

Feedback

Your answer is incorrect.

The correct answer is: Pilot Generator

Question **9**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Thermopiles create enough voltage to supply power to the combustion safety circuit as well as?

Select one:

a.
The Transformer

b.
The Limiting Devices

c.
The Gas Valve

d.
The Control Circuit

Feedback

Your answer is correct.

The correct answer is: The Control Circuit

Question **10**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

In 100% safe systems, the valve shuts off the gas to both the main burner and the pilot burner. For non-100% (or 80%) safe systems the valve shuts off the gas to what device only.

Select one:

a.
Gas Valve

b.
Main Burner

c.
Pilot Burner

d.
The Meter

Feedback

Your answer is correct.

The correct answer is: Main Burner

Question **11**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

An appliance with a flame sensor has an input greater than 120 KW what is the maximum FFRT (Flame Failure Response Time)?

Select one:
a.
90 seconds

b.
12 seconds

c.
20 seconds

d.
4 seconds

Feedback

Your answer is incorrect.

The correct answer is: 4 seconds

Question **12**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the most common flame sensing device for appliances under 1,000,000 Btu?

Select one:
a.
Pyrometer

b.
Thermometer

c.

Flame Rod

d.
Thermostat

Feedback

Your answer is correct.

The correct answer is: Flame Rod

Question **13**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Flame rods are typically made from what material?

Select one:
a.
Kanthol and Globar alloys

b.
Babbit alloys

c.
Brass alloys

d.
Kryptonite alloys

Feedback

Your answer is correct.

The correct answer is: Kanthol and Globar alloys

Question **14**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the current that is generally conducted through a flame?

Select one:
a.
2 - 4 kA

b.
2 – 4 A

c.

2 – 4 µA

d.
2 – 4 mA

Feedback

Your answer is incorrect.

The correct answer is: 2 – 4 µA

Question **15**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Optical flame detectors are divided into three groups, the detection type that scans the visible light spectrum is known as?

Select one:
a.
Gas Filled Detection Tubes

b.
Lead Sulfide Cells

c.
Light Detection Amalgam

d.
Photo Cells

Feedback

Your answer is correct.

The correct answer is: Photo Cells

Question **16**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

UV flame detectors respond to UV sources in a flame. However, it is possible for the detector to respond to other sources of UV radiation such as? (select all that apply)

Select one or more:
a.
Flash Lights

b.

Welding Arcs

c.
Spark Ignition

d.
Incandescent lights

e.
Halogen Lights

f.
Grinding Sparks

g.
Hot Refractory

Feedback

Your answer is incorrect.

The correct answers are: Hot Refractory, Spark Ignition, Welding Arcs, Halogen Lights

Control circuits can be broken down into three categories, devices in that circuit are known as operating control, safety controls, and __________?

Select one:
a.
Limits

b.
Actuators

c.
Pumps

d.
Switches

Feedback

Your answer is incorrect.

The correct answer is: Actuators

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Operating controls have adjustable set points and some type of sensing element used to sense? (select all that apply)

Select one or more:
a.
Pressure

b.
Temperature

c.
Specific weight

d.
Density

e.
Color

Feedback

Your answer is correct.

The correct answers are: Temperature, Pressure

Question **3**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Safety switches are designed to shut off what device if there is an unsafe condition present?

Select one:
a.
The Fan or Pump

b.
The Appliance Power Supply

c.
The Gas Valve

d.
The Control Board

Feedback

Your answer is correct.

The correct answer is: The Gas Valve

Question **4**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

In a gas dryer which device would be considered and safety limit?

Select one:

a.
Door Switch

b.
Thermostat

c.
Gas Valve

d.
Aquastat

Feedback

Your answer is incorrect.

The correct answer is: Door Switch

Question **5**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

For an intermittent pilot system, if the control module sensed an overheating condition and the high limit opened its contacts, what would be de-energized?

Select one:

a.
The Gas Valve

b.
The Control board

c.
The Transformer

d.
The Thermostat

Feedback

Your answer is incorrect.

The correct answer is: The Transformer

Question **6**
Correct
Mark 1.00 out of 1.00

Flag question

Question text

Control modules with electronic ignition were designed to facilitate the operation of appliances where access was difficult, or were frequent pilot outages would occur because of __________?

Select one:

a.
Rain

b.
Clouds

c.
Wind

d.
Sun

Feedback

Your answer is correct.

The correct answer is: Wind

Question **7**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

On most appliances that use a DSI, the ignition module will go into lock-out mode after _____ attempts to detect a flame.

Select one:

a.
3

b.
2

c.
5

d.
4

Feedback

Your answer is incorrect.

The correct answer is: 3

Question **8**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

A HSI has an element that is made from what material?

Select one:

a.

Tetrasodium Pyrophosphate

b.

Carbon Tetrasulphate

c.

Silicon Carbide

d.

Polychloroprene

Feedback

Your answer is correct.

The correct answer is: Silicon Carbide

Question **9**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

What is the most common reason for failure of an HSI's?

Select one:

a.

It is covered in soot.

b.

It is improperly connected.

c.

It is cracked.

d.

It is wet.

Feedback

Your answer is correct.

The correct answer is: It is cracked.

In a forced air furnace the fan’s operation can be controlled by what? (select all that apply)

Select one or more:
a.
Pressure sensing Switches

b.
Temperature-actuated switches

c.
Flow sensing Switches

d.
Timer actuated switches

e.
Motor rotation sensors

Feedback

Your answer is correct.

The correct answers are: Temperature-actuated switches, Timer actuated switches

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The difference in temperature between the fan-on and fan-off setting is called?

Select one:
a.
The fan control differential

b.
The controller

c.
The vent differential

d.
The fan sensor

Feedback

Your answer is correct.

The correct answer is: The fan control differential

Question **3**
Correct
Mark 1.00 out of 1.00

Flag question

Question text

When replacing temperature-activated switches it is recommended that the switches be reinstalled in what location?

Select one:
a.
Near the gas valve

b.
Near the heat exchanger

c.
Near the outlet of the fan

d.
Near the bottom of the unit

Feedback

Your answer is correct.

The correct answer is: Near the heat exchanger

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Using a timer actuated heat on and heat off fan switch, delays can be adjusted, it is recommended that these switches be set initially to what timing?

Select one:
a.
45 sec Heat On, 60 Sec Heat Off

b.
15 sec Heat On, 90 Sec Heat Off

c.
30 sec Heat On, 60 Sec Heat Off

d.
Factory Setting

Feedback

Your answer is correct.

The correct answer is: Factory Setting

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What are three classifications of furnaces?

Select one or more:
a.
Low flow

b.
Up draft

c.
Counter-flow

d.
Horizontal

e.
Vertical

f.
High Boy

g.
Low Boy

h.
CFM

Feedback

Your answer is correct.

The correct answers are: High Boy, Low Boy, Horizontal

Question **6**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Furnaces that utilize mono-port inshot burners can be installed in what orientation?

Select one:
a.
Horizontal left

b.

Down flow

c.
Up flow

d.
Horizontal right

e.
Any of the options

Feedback

Your answer is incorrect.

The correct answer is: Any of the options

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

The difference in temperature between the air entering the blower chamber from the cold air return plenum and the hot air leaving the supply plenum is the definition of _____________?

Select one:
a.
Delta T

b.
Temperature Rise

c.
Temperature Difference

d.
Design Temperature

Feedback

Your answer is incorrect.

The correct answer is: Temperature Rise

Question **8**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

To determine temperature rise in a furnace it is recommended that a hole be drilled in the supply and return plenums to accommodate a thermometer.

Select one:
a.
True

b.
False

Feedback

Your answer is correct.

The correct answer is: True

Question **9**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Temperature rise is controlled by the fan speed, to reduce the temperature rise the fan speed must be ______?

Select one:
a.
Factory set

b.
Decreased

c.
Increased

d.
No adjustment is possible

Feedback

Your answer is correct.

The correct answer is: Increased

Question **10**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Fan motors are of two types' ____________ and _______________?

Select one or more:

a.
Indirect Drive

b.
Direct Drive

c.
Belt Drive

d.
Geared

Feedback

Your answer is correct.

The correct answers are: Direct Drive, Belt Drive

Question **11**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Wiring for a multi speed fan motor in high speed is accomplished in general by connecting the _________ wire.

Select one:
a.
White

b.
Black

c.
Brown

d.
Red

Feedback

Your answer is correct.

The correct answer is: Black

Question **12**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

ESP is the abbreviation for?

Select one:
a.
External Static Pressure

b.
Extra Sensory Perception

c.
Excess to Supply Plenum

d.
Extra Speeds Possible

Feedback

Your answer is correct.

The correct answer is: External Static Pressure

Where is the high limit control usually located on a furnace?

Select one:
a.
On the front partition, detecting air flow past the heat exchanger
b.
In the return air plenum

c.
Below the heat exchanger

d.
On the rear partition, detecting air flow past the heat exchanger

Feedback

Your answer is incorrect.

The correct answer is: On the front partition, detecting air flow past the heat exchanger

Question **2**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How do you test a furnaces' high limit?

Select one:
a.
Switch the leads to the fan to cause it to run in reverse and call for heat

b.
Put the transformer out of phase and call for heat

c.
Disconnect power to the fan and call for heat.

d.
Turn the fan switch setting past 250 "F and call for heat.

Feedback

Your answer is correct.

Disconnect the power to the fan motor and insert a thermometer into the supply plenum. Set the thermostat to call for heat. Ensure that the temperature does not exceed the requirements of either the B149.1 code or the limits specified by the manufacturer.

The correct answer is: Disconnect power to the fan and call for heat.

Question **3**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where is the auxiliary high limit usually located on a counter-flow furnace ?

Select one:
a.
In the fan compartment
b.
In the plenum

c.
Beside the heat exchanger

d.
On top of the furnace

Feedback

Your answer is incorrect.

The correct answer is: In the fan compartment

Question **4**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What could cause a flame roll-out switch to trip ?

Select one:
a.

A decrease in temperature in the burner area.

b.
Too much primary air.

c.
A vent damper stuck in the open position

d.
A lack of combustion air.

Feedback

Your answer is incorrect.

Excessive temperatures in the burner area (usually above 200^0 F) caused by; flashback, downdrafts, plugged heat exchanger or flue passages, lack of combustion air.

The correct answer is: A lack of combustion air.

Question **5**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If the brass jumper is in place in a combination high-limit/fan control, how much voltage would you expect to see being supplied to the high limit?

Select one:
a.
24 Volts

b.
240 Volts

c.
120 Volts

d.
250-750 Millivolts

Feedback

Your answer is incorrect.

The correct answer is: 120 Volts

Question **6**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What adjustments can be made on a combination high-limit/fan control?

Select one:
a.
Fan on set point, Fan off set point, Low fire, High fire

b.
Fan Low Speed, Fan High Speed, Low water level cut off.

c.
Fan-off set point, Fan-on setpoint, High-limit set point
d.
Fan-off set point, Fan-on set point, Low-limit set point, High-limit set point

Feedback

Your answer is incorrect.

The correct answer is: Fan-off set point, Fan-on setpoint, High-limit set point

Question **7**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If you increased the "Heat Off Delay" time on an integrated furnace control module, would it make the system more comfortable or economical?

Select one:
a.
More economical
b.
Neither

c.
More Comfortable

d.
Both, more comfortable and more economical.

Feedback

Your answer is incorrect.

The correct answer is: More economical

Question **8**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where should the furnace's thermostat be located ?

Select one:
a.
1000-1200 mm. off the floor

b.
600-800 mm. off the floor.

c.
1800-2400 mm. off the floor

d.
1400-1500 mm. off the floor

Feedback

Your answer is correct.

Approximately5 ft. (1,400 – 1,500 mm) above the floor on an interior wall or partition away from sunlight, heat producing sources, drafts and dead air pockets

The correct answer is: 1400-1500 mm. off the floor

Question **9**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What are the two most common types of direct drive fan motors?

Select one or more:
a.
HSI

b.
PSC

c.
DSI

d.
ECM

Feedback

Your answer is correct.

PSC (Permanent Split Capacitor) Multi-Speed

ECM (Electronically Commutated Motor) Variable Speed

The correct answers are: PSC, ECM

Question **10**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

If a furnace has a rated output of 90 MBH, a temperature rise of 50°F, how many cubic feet per minute of air must the fan deliver?

Answer CFM

Feedback

CFM = Btuh/(1.08 x temperature rise)

CFM = 90,000/(1.08 x 50F)

CFM = 1.666.67

The correct answer is: 1666.67

Question **11**
Incorrect
Mark 0.00 out of 4.00
Flag question

Question text

Based on the air delivery table illustrated below keeping the external static pressure under 0.50 inches water column, select the appropriate fan speed for both the high and low heat stage if the furnace output high value is 101,000 btuh and output low is 66,000 btuh and the high air temperature rise is 45-75 F and the low air temperature rise is 25-55 F when using a multi-stage fan motor:

Air Delivery in Cubic Feet per Minute (CFM)

ESP	Low	Med Low	Med High	High
0.10	1308	1514	1613	1926
0.20	1316	1533	1599	1882
0.30	1320	1533	1594	1839
0.40	1318	1531	1565	1782
0.50	1311	1512	1536	1721
0.60	1295	1492	1496	1658
0.70	1273	1453	1464	1579

High speed : Answer

CFM (calculated)
Low speed : Answer

CFM (calculated)
High Fire = AnswerLowMed LowMed HighHigh

Low Fire = AnswerLowMed LowMed HighHigh

Feedback

High speed CFM = 101,000Btuh/(1.08 x 60F) = 1558.64

Low speed CFM = 66,000Btuh/(1.08 x 40F) = 1527.78

NOTE: 60F and 40F are calculated as the average temperature range from the value given in the question.

Question **12**
Incorrect
Mark 0.00 out of 2.00
Flag question

Question text

For a furnace, calculate the CFM for both high and low fire based on the following information.

Input: High/Max= 46,000 BTU/HR

Low/Min= 32,000 BTU/HR

Output: High/Max= 44,300 BTU/HR

Low/Min= 30,800 BTU/HR

Temp. Rise= 30 'F - 60 'F

High Fire: Answer

Low Fire: Answer

Feedback

High Fire CFM=44,300 Btuh / 1.08×45 F = 911.52

Low Fire CFM=30,800 Btuh / 1.08×45 F= 633.75

Question **13**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What is the purpose of a pressure switch on a furnace?

Select one:

a.
To prove the fan is delivering the proper CFM flow rate.

b.
To shut off the gas valve as a result of a positive pressure in the combustion chamber.

c.
To prove the inducer fan is working.

d.
To shut off the gas valve as a result of a negative pressure in the combustion chamber.

Feedback

Your answer is incorrect.

To prove that the draft and/or combustion air is adequate (the inducer fan is working)

The correct answer is: To prove the inducer fan is working.

Question **14**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

How could you determine if an inducer fan is creating sufficient pressure (or vacuum) to operate the pressure switch?

Select one:

a.

Insert a barb tee into the sensing hose and use an incline (or digital) manometer

b.

Insert a barb tee into the sensing hose and use an U-Tube manometer

c.

Use a fan gauge to determine the Psig through the tube.

d.

Blow into the tube and see if the contacts close

Feedback

Your answer is correct.

Insert a barb tee into the sensing hose and use an incline (or digital) manometer

The correct answer is: Insert a barb tee into the sensing hose and use an incline (or digital) manometer

Question **15**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What would be the possible result if an appliance had a plugged flue passage or heat exchanger, if it was over firing, or if there is a lack of air supply?

Select one:

a.

Flash Back

b.

Over Firing

c.

Flame Roll Out

d.

Extinction Pop

Feedback

Your answer is incorrect.

Plugged flue passages or heat exchanger, overfiring, or lack of air supply

The correct answer is: Flame Roll Out

Question **16**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which types of appliances may be vented with Type-B gas venting?

Select one:
a.
Forced Draft Category 4

b.
Anywhere condensation is possible.

c.
Natural Draft and Fan-Assisted Category 1
d.
Induced draft Category 4

Feedback

Your answer is correct.

The correct answer is: Natural Draft and Fan-Assisted Category 1

Question **17**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the purpose of a pilot turn down test ?

Select one:
a.
To ensure that the pilot burner is in the correct location to safely ignite the main burner with minimum pilot flame.
b.
To dial in the proper pilot BTU Output prior to igniting the main burner.

c.
To test the operation of the flame rod.

d.
To dial in the proper pilot BTU Input prior to igniting the main burner.

Feedback

Your answer is correct.

To ensure that the pilot burner is in the correct location to safely ignite the main burner with minimum pilot flame

The correct answer is: To ensure that the pilot burner is in the correct location to safely ignite the main burner with minimum pilot flame.

Question **18**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the anticipated voltage of a thermocouple during an open circuit test?

Select one:
a.
10 - 20 DC millivolts

b.
20 - 30 DC millivolts

c.
250 - 750 DC millivolts

d.
20 - 30 AC millivolts

Feedback

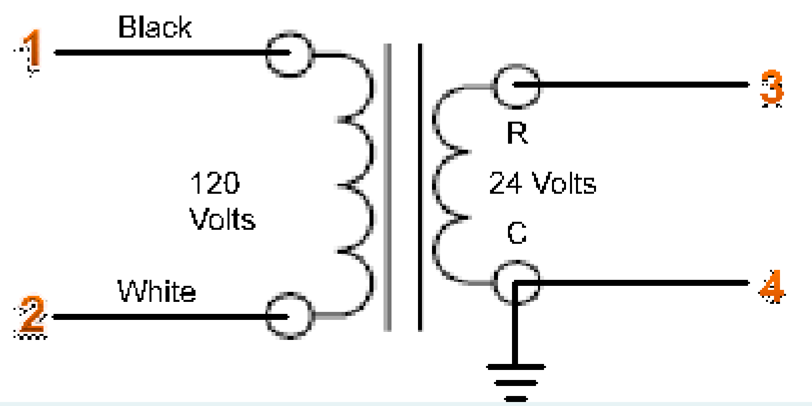
Your answer is correct.

The correct answer is: 20 - 30 DC millivolts

Question **19**
Partially correct
Mark 3.00 out of 6.00
Flag question

Question text

What would be the anticipated voltages between the following points:



#1 and #2 = Answer

Volts

#1 and #3 = Answer

Volts

#1 and #4 = Answer

Volts

#2 and #3 = Answer

Volts

#2 and #4 = Answer

Volts

#3 and #4 = Answer

Volts

Question **20**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

When should a combustion analysis be performed on a furnace?

Select one:

a.

Before and after all adjustments.

b.

An analysis is performed by the manufacturer, not the gas fitter.

c.

An analysis is performed by the utility company, not the gas fitter.

d.

An analysis is only required for appliances over 400MBH.

Feedback

Your answer is correct.

A combustion analysis should be performed before and after all adjustments.

The correct answer is: Before and after all adjustments.

Question **21**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

How do you perform a spillage test on an appliance equipped with a draft hood?

Select one:

a.

Use a flue gas analizer

b.

Use an incline manometer

c.

Use a barometric guage

d.

Use a match

Feedback

Your answer is incorrect.

Allow the appliance time to warm-up, hold a match, flame or smoldering paper near the draft control and verify that the smoke is pulled into the draft control.

The correct answer is: Use a match

Question **22**
Partially correct
Mark 0.75 out of 1.00
Flag question

Question text

What are the four different ways used to express an appliance’s efficiency?

Select one or more:
a.
Adjustable State Efficiency

b.
Flue Gas Efficiency

c.
Thermal Efficiency

d.
CGA

e.
Steady State Efficiency

f.
AFUE

g.
Combustion Efficiency

Feedback

Your answer is partially correct.

You have correctly selected 3.
AFUE, Combustion Efficiency, Steady State Efficiency and Thermal Efficiency

The correct answers are: AFUE, Combustion Efficiency, Steady State Efficiency, Thermal Efficiency

Question **23**
Incorrect
Mark 0.00 out of 1.00

Flag question

Question text

A furnace is clocked through a low-pressure natural gas meter. It takes 80 seconds for the 2 cubic foot test dial to make a complete revolution. If the temperature rise through the furnace is 50°F when the circulating fan is delivering 1,365 CFM, what is the thermal efficiency of the furnace?

Thermal Efficiency Answer

%

Note: {Clocking formula}

3600 sec/hr x Test Dial / Seconds per Revolution = CFH

Feedback

Input = 3600sec/hr80sec/rev$3600sec/hr80sec/rev$ x 2cu.ft/rev x 1000Btu/cu.ft = 90 000 Btuh
Btuh (Output) = 1.08 x 1 365 CFM x 50F = 73 710

Thermal Efficiency = Btuh (Output) / Btuh (Input) x 100 = 73 710Btuh/90 000Btuh x 100 = 81.9%

Question **24**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How often should a furnace filter be cleaned or changed?

Select one:
a.
Every 5 years

b.
Every 3 - 4 months

c.
Annually

d.
Every 10 years

Feedback

Your answer is correct.

Every 3 to 4 months of operation, particularly if they have pets.

The correct answer is: Every 3 - 4 months

Question **25**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

"First remove the plug in the outlet pressure tapping of the gas valve, insert a barb fitting, connect the manometer and start the appliance."

The above statement would be the first step when checking which of the following?

Select one:
a.
House Line Pressure

b.
Manifold Pressure

c.
Service Pressure

d.
Static Pressure

Feedback

Your answer is correct.

Remove the plug in the outlet pressure tapping, insert a barb fitting, connect the manometer and start the appliance.

The correct answer is: Manifold Pressure

Question **26**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If the supply and manifold pressure are correct but the clocked input is incorrect, identify the most likely problem:

Select one:

a.
Under sized manifold.

b.
Incorrect orifice size
c.
Lack of primary air.

d.
Lack of secondary air.

Feedback
Your answer is incorrect.

The correct answer is: Incorrect orifice size

Question **27**
Correct
Mark 1.00 out of 1.00
Flag question

Question text
How do you determine the air supply and vent sizes for a direct vent appliance?

Select one:
a.
NFPA 54

b.
The manufacturer’s literature
c.
Code Tables

d.
Metalbestos Tables

Feedback
Your answer is correct.

The correct answer is: The manufacturer’s literature

Question **28**
Correct
Mark 1.00 out of 1.00
Flag question

Question text
Where must the air supply duct terminate when supplying a low volume installation?

Select one:

a.
Within 3 foot above and 2 feet horizontally of the burner

b.
Within 1 foot above and 2 feet horizontally of the burner.

c.
Within 2 foot above and 1 feet horizontally of the burner

d.
Within 2 foot above and 3 feet horizontally of the burner

Feedback

Your answer is correct.

Within 1 foot above and 2 feet horizontally of the burner level of the appliance with the largest input

The correct answer is: Within 1 foot above and 2 feet horizontally of the burner.

Question **29**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What is the recommended procedure if a home is found to contain 30 PPM CO prior to servicing the furnace?

Select one:

a.
Advice occupants to check for symptoms, check all vented and unvented appliances, including the furnace, check for other potential sources including attached garages

b.
Advice occupants to check for symptoms and call 911

c.
Shut down all gas fired appliances within the home and advise the occupants to vacate the premises.

d.
Do nothing. CO is not a concern until 400 PPM or greater.

Feedback

Your answer is incorrect.

Advice occupants to check for symptoms, check all vented and unvented appliances, including the furnace, check for other potential sources including attached garages

The correct answer is: Advice occupants to check for symptoms, check all vented and unvented appliances, including the furnace, check for other potential sources including attached garages

Question **30**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which of the following is not one of the steps involved for inspecting a furnace's heat exchanger ?

Select one:
a.
Measure the oxygen levels in the vent

b.
Adjust the manifold pressure.

c.
Measure CO levels in the air stream.

d.
Look for flame disturbances

Feedback

Your answer is incorrect.

Look for flame disturbances

Measure CO levels in the air stream

Measure Oxygen levels in the vent

Visually inspect the heat exchanger

The correct answer is: Adjust the manifold pressure.

Question **31**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which of the following would not be necessary when servicing a furnace ?

Select one:
a.
Perform a flue gas analysis.

b.
Adjust the dip switches.

c.
Clean the heat exchanger.

d.
Clock the appliance.

Feedback

Your answer is correct.

Dust and dirt can damage the fan motor and other components as well as create a hazard to the occupant’s health.

The correct answer is: Adjust the dip switches.

Question **32**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Why is it recommended to use a checklist when servicing a furnace?

Select one:
a.
Helps prevent missing any steps.

b.
It is a code requirement.

c.
It must be submitted to the municipality annually.

d.
The utility company requires a copy.

Feedback

Your answer is incorrect.

It will help ensure that you have not overlooked or forgotten to check something

The correct answer is: Helps prevent missing any steps.

Question **33**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

On a previous correctly operating furnace, short cycling starts on a high limit set at 200 °F (93°C). The most likely cause would be:

Select one:
a.
undersized cold air return

b.
dirty air filters
c.
high limit set too low
d.
a short circuit in the high limit

Feedback

Your answer is incorrect.

The correct answer is: dirty air filters

Question **34**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

To decrease the input of a gas burner, you would :

Select one:
a.
reduce the manifold pressure
b.
reduce the primary air to the burner
c.
drill out the burner orifice
d.
turn the adjusting screw in the line pressure regulator clockwise

Feedback

Your answer is correct.

The correct answer is: reduce the manifold pressure

Question **35**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A short in which of the following components would cause the burner to run continuously?

Select one:
a.
Thermostat wiring
b.
Step-down transformer
c.
High limit
d.
Fan switch

Feedback

Your answer is incorrect.

The correct answer is: Thermostat wiring

Question **36**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A flame that is waving or rolling out when the air circulation fan on a furnace comes on may indicate:

Select one:
a.
an over-pressurized manifold
b.
too much primary air
c.
under-sized gas piping to the furnace
d.
a cracked heat exchanger

Feedback

Your answer is correct.

The correct answer is: a cracked heat exchanger

Question **37**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

A customer complains that the furnace air circulating fan cycles ON and OFF frequently but the burner remains ON until the thermostat is satisfied. The fault is more than likely:

Select one:
a.
colder than normal weather
b.
too low of a fan speed
c.
an incorrect heat anticipator setting
d.
too high of a fan speed

Feedback

Your answer is incorrect.

The correct answer is: too high of a fan speed

Question **38**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

During the heating cycle of a forced air furnace the burner cycles ON and OFF but the fan runs continuously. This could be caused by:

Select one:
a.
an incorrectly adjusted heat anticipator
b.
a dirty air filter
c.
a fan speed that is set too low
d.
all the options are correct

Feedback

Your answer is correct.

The correct answer is: all the options are correct

Question **39**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the maximum flame failure response time for a thermocouple ?

Select one:
a.
30 seconds

b.
45 seconds

c.
90 seconds
d.
10 seconds

Feedback

Your answer is incorrect.

The correct answer is: 90 seconds

Question **40**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the typical flame current range through a flame rod circuit ?

Select one:
a.
10-15 micro amps
b.
1-10 amps
c.
2-5 micro amps
d.
20-30 amps

Feedback

Your answer is incorrect.

The correct answer is: 2-5 micro amps

Question **41**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How much resistance would you expect through a silicon nitride igniter?

Select one:
a.
11-17 ohms
b.
0-10 ohms

c.
50 - 100 ohms

d.
18 - 49 ohms

Feedback

Your answer is correct.

The correct answer is: 11-17 ohms

Question **42**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How many Btu’s are gained in a high efficiency furnace by condensing a pound of water vapour?

Select one:
a.
212

b.
970

c.
144

d.
100

Feedback

Your answer is correct.

The correct answer is: 970

Question **43**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If an appliance has a rated input of 120,000 Btuh and a rated output of 96,000 Btuh, what is its combustion efficiency?

Select one:
a.
70 %

b.
75 %

c.
85 %

d.
80 %

Feedback

Your answer is incorrect.

96000 Btuh / 120000 Bhuh x 100

The correct answer is: 80 %

Question **44**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

How much more air must be supplied to an appliance with a draft control device as compared to a fan assist appliance of the same input?

Select one:
a.
20 %

b.
50 %

c.
100 %

d.
80 %

Feedback

Your answer is incorrect.

The correct answer is: 100 %

Question **45**

Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which Table in the gas code would be used to size the air supply duct for a low volume appliance without a draft control device installed within an airtight structure?

Select one:
a.
8.3

b.
8.1

c.
8.2

d.
8.4

Feedback

Your answer is correct.

The correct answer is: 8.2

Question **46**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which code rule lists requirements that must be followed if a heat exchanger is found to be defective?

Select one:
a.
8.4

b.
4.21

c.
5.5

d.
7.13

Feedback

Your answer is incorrect.

The correct answer is: 4.21

Question **47**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Which unit of measure is used to verify that a motor’s capacitor is satisfactory?

Select one:

a.

Millivolts

b.

Volts

c.

Microfarads

d.

Amps

Feedback

Your answer is incorrect.

The correct answer is: Microfarads

Question **48**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

If a cooling coil has a rated capacity of 36,000 Btuh, how many cubic feet per minute of airflow should the circulating fan deliver through the furnace?

Select one:

a.

1000

b.

1200

c.

1800

d.

1500

Feedback

Your answer is incorrect.

36000 Btuh / 12000 Btuh = 3 tons

3 tons x 400 cfm ton = 1200 CFM

The correct answer is: 1200

Question **49**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

If a 120/24 volt transformer is wired “out of phase”, what would be the anticipated voltage between the L1 terminal on the primary side and the C terminal on the secondary side of the transformer?

Select one:
a.
120 volts

b.
24 volts

c.
144 volts

d.
96 volts

Feedback

Your answer is correct.

The correct answer is: 144 volts

Question **50**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which of the following scenarios could cause the pressure switch to open its contacts?

Select one:
a.
Plugged air filter
b.
Improperly adjusted heat anticipator
c.
Scale build up in the inducer fan
d.

Cracked heat exchanger

Feedback

Your answer is correct.

What are the two types of low water cut-off devices encountered on a boiler ?

Select one:

a.
Vertical and Horizontal

b.
Spring and Weighted

c.
Float and Probe

d.
Manual and Automatic

Feedback

Your answer is incorrect.

The correct answer is: Float and Probe

Question **2**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Is the low water cut-off always mounted directly to the boiler?

Select one:

a.
No

b.
Yes

Feedback

Your answer is incorrect.

No, in some installations the low water cut-off is mounted in a parallel pipe arrangement next to the supply riser (hot water) or boiler (steam).

The correct answer is: No

Question **3**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

How often should low water cut-off devices be disassembled, cleaned and checked?

Select one:

a.
Once every 5 years

b.
Once a month

c.
Once every 2 years

d.
Once a year

Feedback

Your answer is correct.

The correct answer is: Once a year

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the most common cause of feeder or low water cut-off problems involving steam boilers?

Select one:

a.
Too much water in the boiler

b.
Too much steam in the boiler.

c.
Failure to observe blowup procedures

d.
Failure to observe blowdown procedures

Feedback

Your answer is correct.

The correct answer is: Failure to observe blowdown procedures

Question **5**
Incorrect
Mark 0.00 out of 1.00

Flag question

Question text

What is a common installation mistake involving probe-type low water cut-offs installed external to a hot water boiler?

Select one:
a.
The float is set too high.

b.
The probe is too long

c.
The probe is installed backwards.

d.
The probe gets wet.

Feedback

Your answer is incorrect.

The probe is too long for the installed location and therefore lacks proper clearance

The correct answer is: The probe is too long

Question **6**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

How many and what type of valves would be encountered on the blow-down line serving a steam boiler?

Select one:
a.
3 valves; 1 quick opening gate valve or angle body globe valve and 2 slow opening y-pattern globe valve (minimum 1 inch pipe size)

b.
2 valves; 1 quick opening gate valve or angle body globe valve and 1 slow opening y-pattern globe valve (minimum 1 inch pipe size)

c.
3 valves; 1 quick opening gate valve or angle body globe valve and 2 slow opening y-pattern globe valves (minimum 3/4 inch pipe size)

d.

2 valves; 1 quick opening gate valve or angle body globe valve and 1 slow opening y-pattern globe valve (minimum 3/4 inch pipe size)

Feedback

Your answer is incorrect.

2 valves; 1 quick opening gate valve or angle body globe valve and 1 slow opening y-pattern globe valve (minimum 3/4 inch pipe size)

The correct answer is: 2 valves; 1 quick opening gate valve or angle body globe valve and 1 slow opening y-pattern globe valve (minimum 3/4 inch pipe size)

Question **7**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

What is the purpose of a water gauge glass on a steam boiler ?

Select one:

a.

It enables the operator to observe the actual steam level.

b.

It enables the operator to observe weather or not the water feed valve is operating correctly.

c.

It enables the operator to observe how often the boiler is changing over.

d.

It enables the operator to observe the actual water level.

Feedback

Your answer is correct.

It enables the operator to observe the actual water level

The correct answer is: It enables the operator to observe the actual water level.

Question **8**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Is it possible to safely test the high-limit aquastat on a boiler?

Select one:

a.

No

b.
Yes

Feedback

Your answer is correct.

Jumper the operating control to allow the water temperature or steam pressure to reach the high limit setpoint. If the hot water boiler manufacturer will allow, turn the high limit aquastat down below the operating aquastat setpoint. Verify that the high limit temperature matches the actual water temperature

The correct answer is: Yes

Question **9**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Where should the flow switch be located on a low mass hot water boiler?

Select one:
a.
The flow switch is located in the hot water return piping entering the boiler

b.
The flow switch is located in the hot water supply piping leaving the boiler

c.
Below the safe water line of the boiler.

d.
After each zone valve

Feedback

Your answer is incorrect.

The flow switch is located in the hot water supply piping leaving the boiler

The correct answer is: The flow switch is located in the hot water supply piping leaving the boiler

Question **10**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

How would you test the opening point for a relief valve installed on a hot water boiler?

Select one:
a.
Close the zone valves and then slowly increase the water pressure from the curb stop until the relief valve set point is reached.

b.
Close the isolation valves and then slowly decrease the water pressure at the PRV until the relief valve set point is reached.

c.
Close the isolation valves and then slowly increase the water pressure at the PRV until the relief valve set point is reached.

d.
Open the isolation valves and then slowly increase the water pressure at the PRV until the relief valve set point is reached.

Feedback

Your answer is incorrect.

Close the isolation valves and then slowly increase the water pressure at the PRV until the relief valve setpoint is reached.

The correct answer is: Close the isolation valves and then slowly increase the water pressure at the PRV until the relief valve set point is reached.

Question **11**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

At what pressure should the pressure reducing valve be set when installed on the make-up water line serving a hot water heating boiler?

Select one:
a.
20 to 30 Psi above the static head pressure

b.
3 to 4 Psi above the static head pressure

c.
20 to 30 Psi below the static head pressure

d.
3 to 4 Psi below the static head pressure

Feedback

Your answer is correct.

3 to 4 Psi above the static head pressure

The correct answer is: 3 to 4 Psi above the static head pressure

Question **12**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What would be the minimum cut-in temperature for an operating aquastat installed on a non-condensing boiler if the heating system is designed for a 20°F temperature drop?

Select one:

a.
120F

b.
180F

c.
140F

d.
160F

Feedback

Your answer is incorrect.

160^0 F (71^0 C) = 140^0 F (60^0 C) + 20^0 F (11^0 C)

The correct answer is: 160F

Question **13**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What would be the minimum cut-out temperature for an operating aquastat installed on a non-condensing boiler if it had a 15°F differential designed for a 20°F temperature drop?

Select one:

a.
155F

b.
160F

c.
145F

d.
175F

Feedback

Your answer is incorrect.

The correct answer is: 175F

Question **14**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What methods could be used to restore the proper air to water ratio in a steel expansion tank ?

Select one:
a.
Open the isolation valve to the expansion tank and then close the drain on either the Airtrol fitting or the sight glass as applicable.

b.
Open the top of the tank, replace the diaphragm. Close the tank and re-charge the tank with the airtrol.

c.
Close the isolation valve to the expansion tank and then open the drain on either the Airtrol fitting or the sight glass as applicable.

d.
Close the isolation valve, remove the tank, recharge the tank and allow adequate time for the air to be absorbed. Then replace the tank.

Feedback

Your answer is correct.

Close the isolation valve to the expansion tank and then open the drain on either the Airtrol fitting or the sight glass as applicable.

The correct answer is: Close the isolation valve to the expansion tank and then open the drain on either the Airtrol fitting or the sight glass as applicable.

Question **15**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

How do you determine the required air pressure for a diaphragm expansion tank?

Select one:
a.
Velocity pressure + 4 Psi

b.
Static (or fill) pressure

c.
Static (or fill) pressure + 4 Psi
d.
Static (or fill) pressure + 14.7 Psi

Feedback

Your answer is correct.

The correct answer is: Static (or fill) pressure + 4 Psi

Question **16**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where is the best location for a diaphragm expansion tank ?

Select one:
a.
On the supply piping after the circulator

b.
On the return piping before the flow switch

c.
On the return piping after the circulator

d.
On the supply piping before the circulator

Feedback

Your answer is correct.

The correct answer is: On the supply piping before the circulator

Question **17**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the difference between a feed water valve and a pressure reducing valve ?

Select one:
a.
A feedwater valve has a wider turn down ratio

b.
A feedwater valve not only reduces pressure it also has a manual fast fill handle

c.
A PRV not only reduces pressure it also has a manual fast fill handle

d.
A PVR has a wider turn down ratio

Feedback

Your answer is incorrect.

A feedwater valve not only reduces pressure it also has a manual fast fill handle

The correct answer is: A feedwater valve not only reduces pressure it also has a manual fast fill handle

Question **18**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Where is the air scoop or separator located in a hot water heating system?

Select one:
a.
On the supply piping leaving the boiler upstream of the circulator

b.
On the return to the boiler

c.
On the supply piping leaving the boiler downstream of the circulator

d.
On the supply piping to each manifold

Feedback

Your answer is correct.

On the supply piping leaving the boiler upstream of the circulator (at the point with the highest temperature and lowest pressure)

The correct answer is: On the supply piping leaving the boiler upstream of the circulator

Question **19**

Correct
Mark 1.00 out of 1.00
Flag question

Question text

In a multi-zone heating system, which device would typically control the operation of a zone valve?

Select one:
a.
The end switch

b.
The flow switch

c.
The zone thermostat
d.
The zone aquastat

Feedback

Your answer is correct.

The correct answer is: The zone thermostat

Question **20**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Should a wet rotor pump be installed with the motor shaft horizontal or vertical?

Select one:
a.
Verticle

b.
Horizontal

Feedback

Your answer is correct.

Horizontal, to ensure that water is circulated inside the rotor can, cooling the motor and lubricating the bearings

The correct answer is: Horizontal

Question **21**
Incorrect
Mark 0.00 out of 1.00

Flag question

Question text

How would you determine the required operating temperature for a condensing boiler?

Select one:

a.

The supply water temperature must be at least equal to the highest temperature system or heat transfer unit being supplied

b.

Condensing boilers come pre set by the manufacturer and adjustment is not possible.

c.

The return water temperature must be at least equal to the lowest temperature system or heat transfer unit being supplied

d.

The return water pressure must be at least equal to the highest pressure system or heat transfer unit being supplied

Feedback

Your answer is incorrect.

The supply water temperature must be at least equal to the highest temperature system or heat transfer unit being supplied

The correct answer is: The supply water temperature must be at least equal to the highest temperature system or heat transfer unit being supplied

Question **22**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

How would you determine if an inducer fan is creating sufficient pressure (or vacuum) to operate the pressure switch?

Select one:

a.

Connect a barometric flow guage the sensing hose from the inducer fan and apply a call for heat.

b.

Connect a U Tube manometer to the sensing hose from the inducer fan and apply a call for heat.

c.

Connect either an incline manometer or digital manometer to the sensing hose from the inducer fan, jumper the pressure switch and call for heat.

d.
Connect either an incline manometer or digital manometer to the sensing hose from the inducer fan and apply a call for heat.

Feedback

Your answer is incorrect.

Connect either an incline manometer or digital manometer to the sensing hose from the inducer fan and apply a call for heat.

The correct answer is: Connect either an incline manometer or digital manometer to the sensing hose from the inducer fan and apply a call for heat.

Question **23**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What would most likely be the cause of a burner flame having solid yellow tips ?

Select one:
a.
Excessive carbon in the natural gas

b.
Excessive hydrogen in the natural gas

c.
Too much combustion air

d.
A lack of air usually primary air

Feedback

Your answer is incorrect.

The correct answer is: A lack of air usually primary air

Question **24**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which of the following would best describe a low pressure steam system?

Select one:

a.
15 PSIG or less

b.
Less than 5 PSIG
c.
Less than 15 PSIG

d.
Greater than 15 PSIG

Feedback

Your answer is incorrect.

The correct answer is: 15 PSIG or less

Question **25**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the difference between a flue damper and a vent damper?

Select one:
a.
Flue dampers are for positive pressures and vent dampers are for negative pressures.

b.
Size

c.
Flue dampers are for negative pressures and vent dampers are for posative pressures.

d.
Location

Feedback

Your answer is incorrect.

Location
A flue damper is upstream of the draft control and a vent damper is downstream of the draft control

The correct answer is: Location

Question **26**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which of the following conditions could cause the burner(s) to shut down?

Select one:
a.
Sediment build up in a float-type low water cut-off
b.
A leaking blow-down valve
c.
A water-logged expansion tank
d.
Air collecting around a poorly installed probe-type low water cut-off

Feedback

Your answer is incorrect.

The correct answer is: Air collecting around a poorly installed probe-type low water cut-off

Question **27**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which types of valves are typically used on the blow-down line of a steam boiler?

Select one:
a.
Gate valve and a butterfly valve

b.
Ball valve and a butterfly valve
c.
Gate valve and a Y-pattern globe valve
d.
Ball valve and a straight-pattern globe valve

Feedback

Your answer is correct.

The correct answer is: Gate valve and a Y-pattern globe valve

Question **28**
Correct

Mark 1.00 out of 1.00
Flag question

Question text

Which of the following devices would be typically used to protect a low-mass residential hot water boiler from operating without sufficient water circulation?

Select one:
a.
Probe-type low water cut-off
b.
Flow switch
c.
Pressure switch
d.
Float-type low water cut-off

Feedback

Your answer is correct.

The correct answer is: Flow switch

Question **29**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

How often should the relief valve setpoint be tested on a hot water boiler?

Select one:
a.
Annually
b.
Monthly
c.
Weekly
d.
Daily

Feedback

Your answer is incorrect.

The correct answer is: Annually

Question **30**
Not answered
Marked out of 1.00
Flag question

Question text

What should be the setpoint for the pressure reducing valve located on the make-up water line serving a residential hot water boiler, if the maximum height of the heating system is 30 feet?

Select one:
a.
13 Psi

b.
9 Psi

c.
17 Psi

d.
15 Psi

Feedback

Your answer is incorrect.

The correct answer is: 17 Psi

Question **31**
Not answered
Marked out of 1.00
Flag question

Question text

What is the minimum return water temperature for most non-condensing hot water boilers?

Select one:
a.
50 °C

b.
70 °C

c.
40 °C

d.
60 °C

Feedback

Your answer is incorrect.

The correct answer is: 60 °C

Question **32**
Not answered

Marked out of 1.00
Flag question

Question text

What is the difference between the cut-in and cut-out temperature for an operating aquastat with a fixed differential?

Select one:
a.
5 - 10 °F

b.
15 - 20 °F

c.
2 - 5 °F

d.
10 - 15 °F

Feedback

Your answer is incorrect.

The correct answer is: 2 - 5 °F

Question **33**
Not answered
Marked out of 1.00
Flag question

Question text

Which of the following could cause the relief valve on a hot water boiler to discharge only after the burners have ignited?

Select one:
a.
A water-logged expansion tank
b.
An undersized primary pump
c.
Sediment build up in a float-type low water cut-off

d.
A faulty operating aquastat

Feedback

Your answer is incorrect.

The correct answer is: A water-logged expansion tank

Question **34**
Not answered
Marked out of 1.00
Flag question

Question text

What is the optimal ratio of water and air in a steel expansion tank?

Select one:
a.
1/3 water, 2/3 air
b.
1/3 air, 2/3 water
c.
1/4 air, 3/4 water
d.
1/4 water, 3/4 air

Feedback

Your answer is incorrect.

The correct answer is: 1/3 air, 2/3 water

Question **35**
Not answered
Marked out of 1.00
Flag question

Question text

When is the best time to charge a diaphragm expansion tank?

Select one:
a.
Once the burners have been operating for at least 10 minutes
b.
Prior to being installed
c.
After the system is filled with water
d.
After the burners have shut down and the water temperature has cooled

Feedback

Your answer is incorrect.

The correct answer is: Prior to being installed

Question **36**
Not answered
Marked out of 1.00

Flag question

Question text

Where should a diaphragm expansion tank be installed?

Select one:
a.
On the return line o the boiler downstream of the feedwater pump
b.
On the return line to the boiler upstream of the feedwater pump
c.
On the supply line from the boiler upstream of the circulating pump

d.
On the return line o the boiler downstream of the feedwater pump

Feedback

Your answer is incorrect.

The correct answer is: On the supply line from the boiler upstream of the circulating pump

Question **37**
Not answered
Marked out of 1.00
Flag question

Question text

Where should the backflow preventer be installed?

Select one:
a.
On the make-up waterline to the boiler downstream of the PRV
b.
On the supply line leaving the boiler upstream of the circulating pump
c.
On the return line to the boiler as close as possible to the boiler
d.
On the make-up waterline to the boiler upstream of the PRV

Feedback

Your answer is incorrect.

The correct answer is: On the make-up waterline to the boiler upstream of the PRV

Question **38**
Not answered
Marked out of 1.00
Flag question

Question text

What is typically installed in the top of an air scoop?

Select one:

a.

Automatic air vent

b.

Pressure gauge

c.

Temperature gauge

d.

Expansion tank

Feedback

Your answer is incorrect.

The correct answer is: Automatic air vent

Question **39**

Not answered

Marked out of 1.00

Flag question

Question text

Where is the best location for an automatic air vent to be installed?

Select one:

a.

Low temperature locations

b.

High points

c.

Low points

d.

High pressure locations

Feedback

Your answer is incorrect.

The correct answer is: High points

Question **40**

Not answered

Marked out of 1.00

Flag question

Question text

What is the operating control for the gas valve on a steam boiler?

Select one:
a.
Pressuretrol
b.
Low water cut-off
c.
Thermostat
d.
Aquastat

Feedback

Your answer is incorrect.

The correct answer is: Pressuretrol

Question **41**
Not answered
Marked out of 1.00
Flag question

Question text

What type of mixing valve would be used to control the water temperature to a radiant infloor heating system when a non-condensing boiler is being used as the heating source?

Select one:
a.
3 way

b.
4 way

c.
2 way

d.
1 way

Feedback

Your answer is incorrect.

The correct answer is: 4 way

Question **42**
Not answered
Marked out of 1.00
Flag question

Question text

What is the maximum floor surface temperature permitted by the CSA B214 standard for a living room in a dwelling unit (more than 3 ft. (0.9 m) from an outside wall?

Select one:
a.
88 °F (31 °C)

b.
95 °F(35 °C)

c.
91 °F(33 °C)

d.
77 °F(25 °C)

Feedback

Your answer is incorrect.

The correct answer is: 88 °F (31 °C)

Question **43**
Not answered
Marked out of 1.00
Flag question

Question text

Which of the following devices would typically be used to ensure that the inducer fan is working on a fan-assisted hot water boiler?

Select one:
a.
HIgh limit

b.
Pressure switch

c.
Flow switch

d.
Fan switch

Feedback

Your answer is incorrect.

The correct answer is: Pressure switch

Question **44**
Not answered
Marked out of 1.00

Flag question

Question text

If an atmospheric burner is experiencing flame lift-off and both the manifold pressure and orifice size are correct, what is the most likely cause?

Select one:
a.
Too much secondary air
b.
Faulty inducer fan
c.
Too much primary air
d.
Restricted flue passages

Feedback

Your answer is incorrect.

The correct answer is: Too much primary air

Question **45**
Not answered
Marked out of 1.00
Flag question

Question text

If a boiler that contains an atmospheric burner is experiencing flame rollout and both the manifold pressure and orifice size are correct, what is the most likely cause?

Select one:
a.
Faulty inducer fan

b.
Too much secondary air

c.
Restricted flue passages

d.
Too much primary air

Feedback

Your answer is incorrect.

The correct answer is: Restricted flue passages

Question **46**
Not answered

Marked out of 1.00
Flag question

Question text

What is the minimum distance above a roof that an S636 venting system may terminate if it is serving a Category IV hot water boiler?

Select one:

a.
3.0 ft (900 mm)

b.
2.0 ft (600 mm)

c.
1.5 ft (450 mm)

d.
3.5 ft (1065 mm)

Feedback

Your answer is incorrect.

8.14.3

The correct answer is: 1.5 ft (450 mm)

Question **47**
Not answered
Marked out of 1.00
Flag question

Question text

What type of venting may be used downstream of an automatically operated vent damper serving a residential gas-fired boiler?

Select one:

a.
Type C

b.
Type B

c.
Type BW

d.
Type A

Feedback

Your answer is incorrect.

Code Clause 8.26.2

The correct answer is: Type B

Question **48**
Not answered
Marked out of 1.00
Flag question

Question text

Where is the best location for a vent damper?

Select one:
a.
Vertically upstream of the draft hood
b.
Vertically downstream of the draft hood
c.
Horizontally downstream of the draft hood
d.
Horizontally downstream of the inducer fan

Feedback

Your answer is incorrect.

The correct answer is: Vertically downstream of the draft hood

Question **49**
Not answered
Marked out of 1.00
Flag question

Question text

What is the typical voltage required for an electric vent damper motor?

Select one:
a.
0.75 volt

b.
12 volt

c.
120 volt

d.
24 volt

Feedback

Your answer is incorrect.

The correct answer is: 24 volt

Question **50**

Not answered

Marked out of 1.00

Flag question

Question text

What is the term used to describe when the flue gas travels the length of a firetube boiler?

Select one:

a.
Pass

b.
Travel

c.
Circulation

d.
Stage

Feedback

Your answer is incorrect.

The correct answer is: Pass

Which of the following is not a type of appliance used to heat domestic hot water?

Select one:

a.
Tankless Water Heater

b.
Storage Tank Water Heater

c.
Reverse Return Water heater
d.
Indirect Water Heater

Feedback

Your answer is incorrect.

The correct answer is: Reverse Return Water heater

Question **2**

Not answered

Marked out of 1.00

Flag question

Question text

What does FVIR indicate when referring to hot water tanks?

Select one:

a.
Flammable Vapour Ignition Resistant

b.
Forced Variable Ignition Resistance

c.
Flammable Vapour Ignition Response

d.
Forced Variable Ignition Response

Feedback

Your answer is incorrect.

The correct answer is: Flammable Vapour Ignition Resistant

Question **3**

Not answered

Marked out of 1.00

Flag question

Question text

Where is the TCO located on a hot water tank?

Select one:

a.
Just inside the outer door or part of the pilot assembly

b.
At the top of the tank not in direct sun light

c.
Just outside the outer door or part of the pilot assembly

d.
Just outside the outer door or part of the main burner assembly

Feedback

Your answer is incorrect.

The correct answer is: Just inside the outer door or part of the pilot assembly

Question **4**
Not answered
Marked out of 1.00
Flag question

Question text

Which type of gas valve may incorporate an “ECO”?

Select one:
a.
Pilot Operated

b.
Rod and Tube
c.
Redundant

d.
Tube and Shell

Feedback

Your answer is incorrect.

The correct answer is: Rod and Tube

Question **5**
Not answered
Marked out of 1.00
Flag question

Question text

Where is a flammable vapour sensor located on a hot water tank?

Select one:
a.
Above the heat exchanger

b.
In the combustion chamber

c.
Near the combustion air intake
d.
In the plenum

Feedback

Your answer is incorrect.

The correct answer is: Near the combustion air intake

Question **6**
Not answered
Marked out of 1.00
Flag question

Question text

How do you test a flammable vapour sensor?

Select one:
a.
With an ammeter

b.
With an incline manometer

c.
With a match

d.
With an ohmmeter

Feedback

Your answer is incorrect.

The correct answer is: With an ohmmeter

Question **7**
Not answered
Marked out of 1.00
Flag question

Question text

Which devices are wired in series with an ECO ?

Select one:
a.
Thermocouple, Safety Shut-off and possibly a TCO
b.
Thermocouple, BVI and BPI

c.
Flame roll out, Thermistor and Fan Switch

d.
Flame roll out, BVI and Fan switch

Feedback

Your answer is incorrect.

The correct answer is: Thermocouple, Safety Shut-off and possibly a TCO

Question **8**
Not answered
Marked out of 1.00
Flag question

Question text

Which device is typically used to monitor inlet and outlet water temperatures on a tankless heater?

Select one:
a.
Thermostats

b.
Flame Roll Out Switch

c.
Fan Switch

d.
Thermistors

Feedback

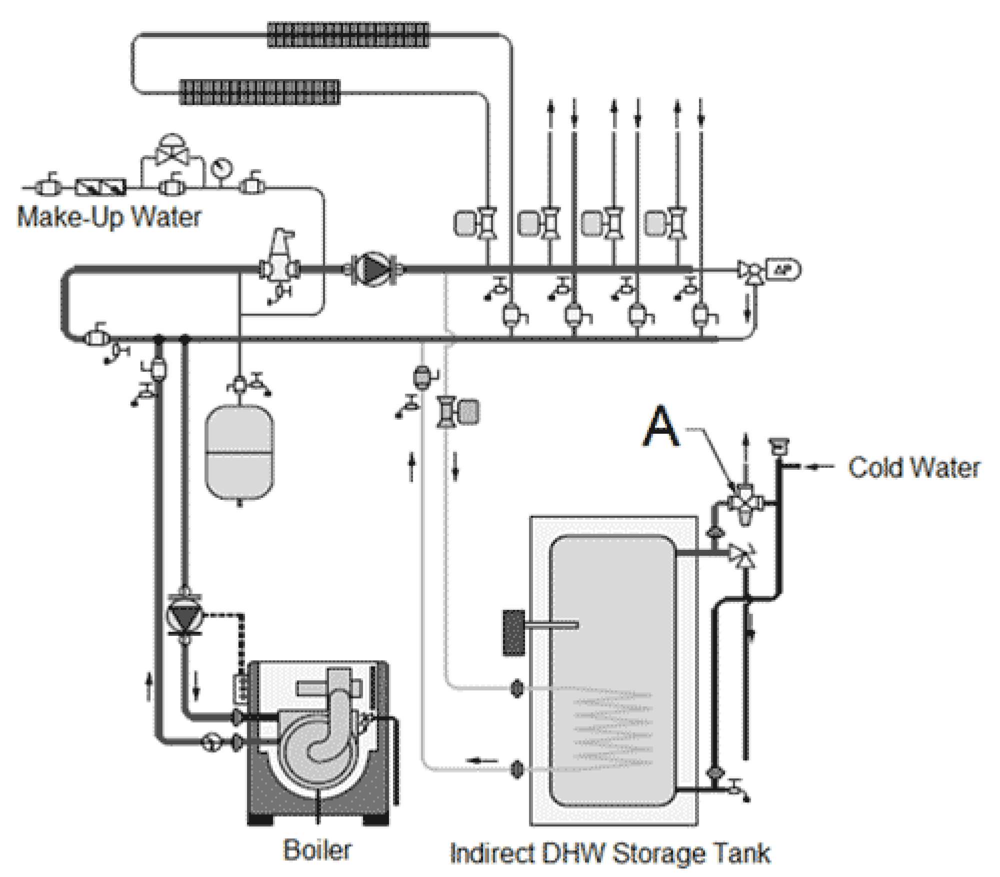
Your answer is incorrect.

The correct answer is: Thermistors

Question **9**
Not answered
Marked out of 1.00
Flag question

Question text

Identify Item “A” in the illustration shown below:



Select one:

a.
Flow Switch

b.
Flow Control Valve

c.
Mixing or Tempering Valve

d.
Balancing Valve

Feedback

Your answer is incorrect.

The correct answer is: Mixing or Tempering Valve

Question **10**

Not answered
Marked out of 1.00
Flag question

Question text

What is the maximum permitted temperature to be supplied to either a shower or bathtub ?

Select one:
a.
120 F

b.
100 ^{0} F

c.
140 F

d.
160 F

Feedback

Your answer is incorrect.

The correct answer is: 120 F

Question **11**
Not answered
Marked out of 1.00
Flag question

Question text

Which devices are typically used to protect against thermal expansion in a domestic hot water system and prevent the T&P relief valve from discharging?

Select one:
a.
Expansion Tank and Auxiliary Relief Valve
b.
Thermodynamic Steam Trap

c.
Flow Control Valve

d.
Auxiliary Receiver

Feedback

Your answer is incorrect.

The correct answer is: Expansion Tank and Auxiliary Relief Valve

Question **12**
Not answered
Marked out of 1.00
Flag question

Question text

At what pressure should a potable expansion tank be pre-charged?

Select one:
a.
Same as the pressure reducing valve
b.
5 Psig above the cut in pressure

c.
5 Psig above the cut out pressure

d.
30 Psig

Feedback

Your answer is incorrect.

The correct answer is: Same as the pressure reducing valve

Question **13**
Not answered
Marked out of 1.00
Flag question

Question text

What problem may be encountered if a tankless heater was set at 130 F (54 C) ?

Select one:
a.
Excessive calcification will occur on the inside of the heat exchanger.

b.
The heater may not have the capacity to reach that temperature due to the heat input, flow rate and/or inlet water temperature.

c.
The water would never get warm enough and the Low Limit Water Sensor would constantly trip.

d.
No problems will occur. This is normal operating temperature for a tankless heater

Feedback

Your answer is incorrect.

The heater may not have the capacity to reach that temperature due to the heat input, flow rate and/or inlet water temperature.

The correct answer is: The heater may not have the capacity to reach that temperature due to the heat input, flow rate and/or inlet water temperature.

Question **14**

Not answered

Marked out of 1.00

Flag question

Question text

Identify the four different configurations available for hot water tanks based upon how the combustion air is being supplied and how the appliance is vented:

Select one:

a.

Atmospheric or Natural Draft, Direct Vent, Power Vented, Powered Direct Vent

b.

Atmospheric or Negative Draft, Direct Vent, Power Vented, Powered Belt Driven Direct Vent

c.

Power or Positive Draft, Direct Vent, Power Vented, Powered Belt Driven Vent

d.

Forced Draft, Indirect Vent, Power Vented, Powered Direct Vent

Feedback

Your answer is incorrect.

Atmospheric or Natural Draft, Direct Vent, Power Vented, Powered Direct Vent

The correct answer is: Atmospheric or Natural Draft, Direct Vent, Power Vented, Powered Direct Vent

Question **15**

Not answered

Marked out of 1.00

Flag question

Question text

Describe a concentric venting system:

Select one:

a.

The exhaust reduces in size depending on the length

b.

The exhaust vent is located inside the air supply pipe

c.

The exhaust increases in size depending on the length

d.
The exhaust vent is located outside the air supply pipe

Feedback

Your answer is incorrect.

The exhaust vent is located inside the air supply pipe

The correct answer is: The exhaust vent is located inside the air supply pipe

Question **16**
Not answered
Marked out of 1.00
Flag question

Question text

What are the three styles of tankless heaters based on venting and combustion air supply ?

Select all that apply.

Select one or more:
a.
Positive Displacement

b.
Outdoor

c.
Direct Vent Indoor

d.
Non Direct Vent Indoor

Feedback

Your answer is incorrect.

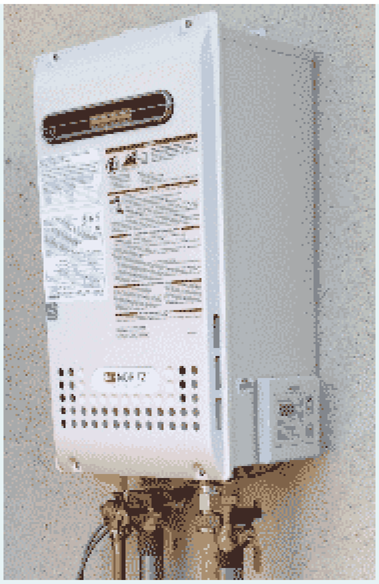
Non Direct Vent Indoor, Direct Vent Indoor, Outdoor

The correct answers are: Non Direct Vent Indoor, Direct Vent Indoor, Outdoor

Question **17**
Not answered
Marked out of 1.00
Flag question

Question text

Is the tankless water heater illustrated below designed for indoor or outdoor use?



Select one:
a.
Outdoor

b.
Indoor

Feedback

Your answer is incorrect.

Outdoor - no vents

The correct answer is: Outdoor

Question **18**
Not answered
Marked out of 1.00
Flag question

Question text

The following description is for which type appliance?

The appliance is located in a mechanical room and the air supply is taken directly from the outdoors to the appliance and then vented directly to the outdoors

Select one:
a.
Counter Flow

b.
Direct Vent

c.

Outdoor

d.
Indirect Vent

Feedback

Your answer is incorrect.

With a direct vent appliance the air supply is taken directly from the outdoors to the appliance and then vented directly to the outdoors

The correct answer is: Direct Vent

Question **19**
Not answered
Marked out of 1.00
Flag question

Question text

What is the advantage of a vent damper installed on a hot water tank ?

Select one:
a.
Slows down the products of combustion

b.
It increases standby losses

c.
It reduces standby losses
d.
Recirculates flue gases

Feedback

Your answer is incorrect.

The correct answer is: It reduces standby losses

Question **20**
Not answered
Marked out of 1.00
Flag question

Question text

What is the minimum acceptable voltage for a thermocouple when conducting an open circuit test?

Select one:
a.
20 millivolts

b.
10 millivolts

c.
24 volts

d.
12 volts

Feedback

Your answer is incorrect.

The correct answer is: 20 millivolts

Question **21**
Not answered
Marked out of 1.00
Flag question

Question text

What is the anticipated current flow through a flame rod?

Select one:
a.
2 – 5 microvolts

b.
1 – 2 microamps

c.
1 – 2 microvolts

d.
2 – 5 microamps

Feedback

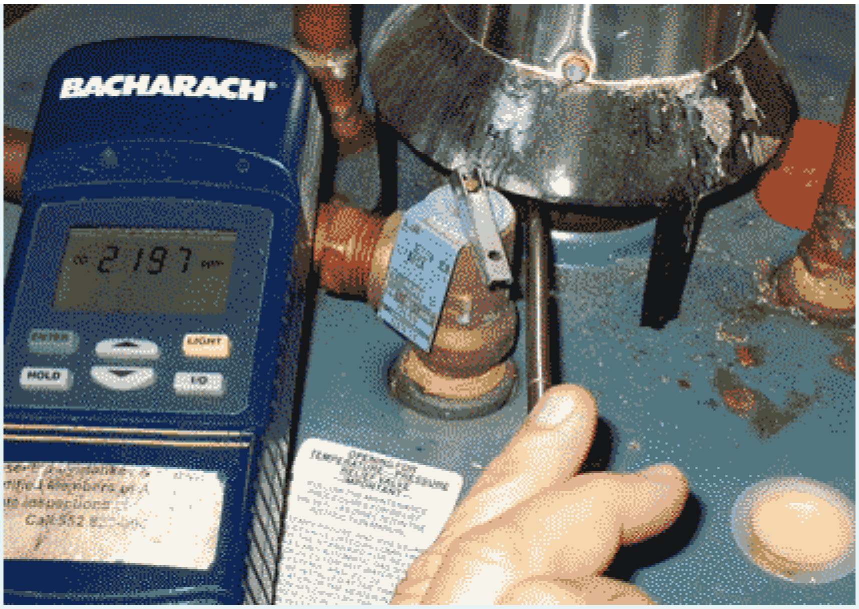
Your answer is incorrect.

The correct answer is: 2 – 5 microamps

Question **22**
Not answered
Marked out of 1.00
Flag question

Question text

Is the carbon monoxide reading on the flue gas analyzer illustrated below acceptable for this installation?



Select one:

a.
Yes

b.
No

Feedback

Your answer is incorrect.

No, the maximum permitted CO level is 100 ppm

The correct answer is: No

Question **23**

Not answered

Marked out of 1.00

Flag question

Question text

What are the two venting configurations encountered for “Direct Vent” tankless water heaters?

Select one:

a.
Eccentric (or Coaxial) and individual pipe

b.
Recirculation and two individual pipes

c.
Concentric (or Coaxial) and two individual pipes

d.
Atmospheric and two individual pipes

Feedback

Your answer is incorrect.

The correct answer is: Concentric (or Coaxial) and two individual pipes

Question **24**
Not answered
Marked out of 1.00
Flag question

Question text

Which type of anode should be used if the water contains “Divibrio Sulfurican” bacteria?

Select one:
a.
Stainless steel

b.
Copper

c.
Aluminum
d.
Carbon Steel

Feedback

Your answer is incorrect.

The correct answer is: Aluminum

Question **25**
Not answered
Marked out of 1.00
Flag question

Question text

What can be used to flush a tankless water heater?

Select one:
a.
Potassium Permanganate

b.
Bleach and Water

c.
Saline Solution

d.
Vinegar and Water

Feedback

Your answer is incorrect.

Disconnect the power supply and shut-off the gas supply. Isolate the heater and circulate 5 gallons (19 l) of vinegar or citric acid through the appliance for 45 minutes and then flush with water for 5 minutes.

The correct answer is: Vinegar and Water

Question **26**
Not answered
Marked out of 1.00
Flag question

Question text

What appliance is typically used to heat the domestic hot water for an indirect storage tank?

Select one:
a.
Boiler

b.
Fireplace

c.
Direct fired hot water tank

d.
Furance

Feedback

Your answer is incorrect.

The correct answer is: Boiler

Question **27**
Not answered
Marked out of 1.00
Flag question

Question text

What is the temperature range for a TCO that is integral with a thermocouple?

Select one:
a.
120 °F - 160 °F

b.

160 °F - 200 °F

c.
100 °F - 140 °F

d.
180 °F - 220 °F

Feedback

Your answer is incorrect.

The correct answer is: 160 °F - 200 °F

Question **28**
Not answered
Marked out of 1.00
Flag question

Question text

Which multimeter setting would be used to test a thermistor?

Select one:
a.
Ohms

b.
DC Micro-Amps

c.
DC Millivoltage

d.
AC Voltage

Feedback

Your answer is incorrect.

The correct answer is: Ohms

Question **29**
Not answered
Marked out of 1.00
Flag question

Question text

What is the minimum acceptable voltage for a thermocouple when conducting a closed circuit test ?

Select one:
a.
20 mv

b.
10 mv

c.
30 mv

d.
5 mv

Feedback

Your answer is incorrect.

The correct answer is: 10 mv

Question **30**
Not answered
Marked out of 1.00
Flag question

Question text

Which device is used to prove ignition of the main burner in a tankless water heater?

Select one:
a.
Thermistor

b.
Thermocouple

c.
HIgh limit

d.
Flame rod

Feedback

Your answer is incorrect.

The correct answer is: Flame rod

Question **31**
Not answered
Marked out of 1.00
Flag question

Question text

If an auxiliary relief valve is used rather than an expansion tank, what should be the setpoint?

Select one:
a.

10 Psig (70 kPa) above the tank relief valve setting
b.
60 Psig (420 kPa)
c.
80 Psig (550 kPa)
d.
10 Psig (70 kPa) below the tank relief valve setting

Feedback

Your answer is incorrect.

The correct answer is: 10 Psig (70 kPa) below the tank relief valve setting

Question **32**
Not answered
Marked out of 1.00
Flag question

Question text

Which of the following devices would be required on a hot water tank but not on a tankless heater?

Select one:
a.
Flow switch
b.
Temperature relief valve
c.
Pressure reducing valve
d.
Pressure relief valve

Feedback

Your answer is incorrect.

The correct answer is: Temperature relief valve

Question **33**
Not answered
Marked out of 1.00
Flag question

Question text

What is the optimum water pressure range for a tankless water heater?

Select one:
a.
80 – 130 Psi (550 – 900 kPa)

b.
100 – 150 Psi (700 – 1,035 kPa)

c.
50 – 100 Psi (345 – 700 kPa)
d.
30 – 80 Psi (200 – 500 kPa)

Feedback

Your answer is incorrect.

The correct answer is: 30 – 80 Psi (200 – 500 kPa)

Question **34**
Not answered
Marked out of 1.00
Flag question

Question text

What is the minimum height that ULC S636 venting may terminate above a roof ?

Select one:
a.
1.5 Feet (450 mm)
b.
4.0 Feet (1200 mm)

c.
3.0 Feet (900 mm)

d.
2.0 Feet (600 mm)

Feedback

Your answer is incorrect.

Code Clause 8.14.3

The correct answer is: 1.5 Feet (450 mm)

Question **35**
Not answered
Marked out of 1.00
Flag question

Question text

If a tankless water heater is being vented through a sidewall, what is the minimum height that it may terminate above a sidewalk or a paved driveway that is located on public property?

Select one:

a.
15 Feet (4.5 m)

b.
3 Feet (0.9 m)

c.
7 Feet (2.1 m)

d.
5 Feet (1.5 m)

Feedback

Your answer is incorrect.

Code Clause 8.14.8

The correct answer is: 7 Feet (2.1 m)

Question **36**
Not answered
Marked out of 1.00
Flag question

Question text

How often should a T&P relief valve be removed and visually inspected ?

Select one:
a.
Every 5 years

b.
Every 7 years

c.
Annually

d.
Every 3 years

Feedback

Your answer is incorrect.

The correct answer is: Every 3 years

Question **37**
Not answered
Marked out of 1.00
Flag question

Question text

If the pressure reading on a manometer is 0.85 inches water column when testing a pressure switch with an activation point of 1.07 inches water column which component(s) would most likely require service?

Select one:
a.
The vent damper and/or end switch
b.
The thermostat and/or high limit
c.
The pressure switch and/or condensate trap
d.
The inducer motor and/or sensing tube

Feedback

Your answer is incorrect.

The correct answer is: The inducer motor and/or sensing tube

Question **38**
Not answered
Marked out of 1.00
Flag question

Question text

What type of venting should typically be used with a Category I Natural Draft hot water tank?

Select one:
a.
PVC

b.
CPVC

c.
Type B Vent

d.
Type A Vent

Feedback

Your answer is incorrect.

The correct answer is: Type B Vent

Question **39**
Not answered
Marked out of 1.00

Flag question

Question text

What is the color of S636 PVC venting?

Select one:

a.

Grey

b.

Blue

c.

Black

d.

White

Feedback

Your answer is incorrect.

The correct answer is: White

Question **40**

Not answered

Marked out of 1.00

Flag question

Question text

What is the typical range for the spark gap serving a piezoelectric igniter ?

Select one:

a.

1/2 - 5/8 inch (12.7 - 15.9 mm)

b.

7/64 - 1/4 inch (2.8 - 6.4 mm)

c.

3/8 - 1/2 inch (9.5 - 12.7 mm)

d.

1/4 - 3/8 inch (6.4 - 9.5 mm)

Feedback

Your answer is incorrect.

The correct answer is: 7/64 - 1/4 inch (2.8 - 6.4 mm)

Question **41**

Not answered

Marked out of 1.00

Flag question

Question text

What should be the next step in the sequence of operation for a tankless water heater once the ventor motor is powered ?

Select one:
a.
A flame signal is received by the control module
b.
The pressure switch contacts close
c.
The igniter is energized
d.
The gas valve is energized

Feedback

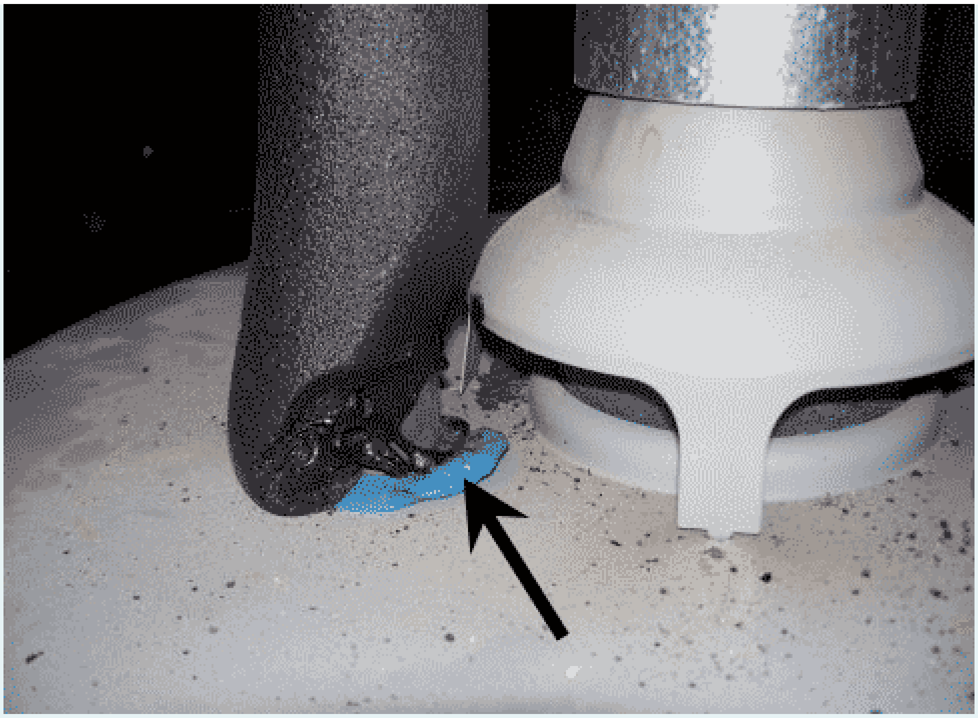
Your answer is incorrect.

The correct answer is: The pressure switch contacts close

Question **42**
Not answered
Marked out of 1.00
Flag question

Question text

If the paint surface is discoloured, or the plastic grommets installed around the hot and cold water piping on a hot water tank have melted as in the illustration below, what could be the possible cause?



Select one:

a.
Flue gas spillage

b.
Faulty high limit

c.
Plugged flame arrestor

d.
Excessive water temperature

Feedback

Your answer is incorrect.

The correct answer is: Flue gas spillage

Question **43**

Not answered
Marked out of 1.00
Flag question

Question text

If a tankless water heater has a low supply water pressure what could be the problem ?

Select one:

a.
Waterlogged expansion tank

b.
Plugged sensor tube on the pressure switch
c.
Plugged inlet screen or filter
d.
Incorrect dip switch setting on the control board

Feedback

Your answer is incorrect.

The correct answer is: Plugged inlet screen or filter

Question **44**
Not answered
Marked out of 1.00
Flag question

Question text

At what diameter should an anode rod in a hot water tank be replaced ?

Select one:
a.
3/8 inch (9.5 mm) or less
b.
1/4 inch (6.4 mm) or less

c.
1/2 inch (12.7 mm) or less

d.
5/8 inch (15.9 mm) or less

Feedback

Your answer is incorrect.

The correct answer is: 3/8 inch (9.5 mm) or less

Question **45**
Not answered
Marked out of 1.00
Flag question

Question text

If a tankless water heater has an “Overheat” or “Lime” error code what is most likely the cause ?

Select one:
a.
High gas manifold pressure

b.
Plugged combustion air inlet opening
c.
Incorrect thermostat setting
d.
Scale buildup in the heat exchanger

Feedback

Your answer is incorrect.

The correct answer is: Scale buildup in the heat exchanger

Question **46**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

If the TCO has tripped on a hot water tank what should be checked ?

Select one:
a.
The thermostat and ECO setpoints
b.
The gas inlet and manifold pressure
c.
The air intake and flame arrestor
d.
The temperature and pressure relief valve

Feedback

Your answer is incorrect.

The correct answer is: The air intake and flame arrestor

Question **47**
Not answered
Marked out of 1.00
Flag question

Question text

If the vacuum relief valve installed in conjunction with a hot water tank was stuck in the closed position what could be the result ?

Select one:
a.
The incoming cold water could be drawn from the hot supply, leaving hot water at the bottom of the tank

b.
The tank could rupture if exposed to excessive pressure
c.
The water would be too hot
d.
The tank could collapse if exposed to a backsiphonage condition

Feedback

Your answer is incorrect.

The correct answer is: The tank could collapse if exposed to a backsiphonage condition

Question **48**
Not answered
Marked out of 1.00
Flag question

Question text

If a tankless water heater installed at an elevation of 5,000 Ft. (1,524 m) is experiencing above normal CO levels during a flue gas analysis, what is the most likely cause ?

Select one:
a.
Corroded or damaged flame rod
b.
Incorrect orifice size or dip switch setting
c.
Faulty pressure switch
d.
Insufficient water flow rate

Feedback

Your answer is incorrect.

The correct answer is: Incorrect orifice size or dip switch setting

Question **49**
Not answered
Marked out of 1.00
Flag question

Question text

If the burner in a tankless water heater fires but shuts off almost immediately, which circuit should be checked first ?

Select one:
a.
The pressure switch circuit

b.
The blower motor circuit

c.
The flame rod circuit
d.
The thermostat circuit

Feedback

Your answer is incorrect.

The correct answer is: The flame rod circuit

Question **50**
Not answered
Marked out of 1.00
Flag question

Question text

If a tankless water heater is experiencing above normal flue gas temperatures what is the most likely cause?

Select one:
a.
Plugged or dirty heat exchanger
b.
Waterlogged expansion tank
c.
Undersized gas supply piping
d.
Insufficient gas manifold pressure

Feedback

Your answer is incorrect.

The correct answer is: Plugged or dirty heat exchanger

Select the three basic types of manometers.

Select one or more:
a.
Dual tube

b.
Micro

c.
Snake

d.

Well

e.
U-Tube

f.
Venturi

g.
Incline (or Slope)

Feedback

Your answer is correct.

The correct answers are: Incline (or Slope), Well, U-Tube

Question **2**
Partially correct
Mark 0.75 out of 1.00
Flag question

Question text

Which of the following fluids would **not** be used in a manometer?

Select one or more:
a.
Acetone

b.
Gasoline

c.
Alcohol

d.
Water

e.
Oil

f.
Mercury

Feedback

Your answer is partially correct.

You have selected too many options.
Water, Mercury, organic chemicals that don’t mix with water such as oil

The correct answers are: Gasoline, Acetone

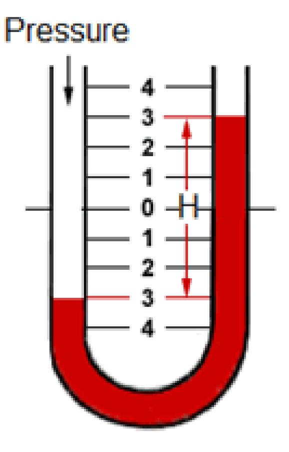
Question **3**

Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What would be the pressure reading for the following illustration if water was used as the pressure indicator?

Answer inches water column



Feedback

The correct answer is: 6

Question **4**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The advantage an inclined manometer has over a U-tube manometer is greater accuracy for high pressurelow pressuregas specificconfined space applications. (Usually less than 1 inch wc)

Feedback

Your answer is correct.

The correct answer is:
The advantage an inclined manometer has over a U-tube manometer is greater accuracy for [low pressure] applications. (Usually less than 1 inch wc)

Question **5**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What pressures does a magnehelic gauge read?

Select one:
a.
Positive pressures

b.
Negative pressures

c.
Magnetic Fields

d.
Both positive and negative pressures

Feedback

Your answer is correct.

The correct answer is: Both positive and negative pressures

Question **6**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

A pyrometer is used to measure what?

Select one:
a.
Flow

b.
Pressures

c.
Vacuum

d.
Temperatures

Feedback

Your answer is correct.

The correct answer is: Temperatures

Question **7**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

The measure of how effective the heat content of a fuel transferred to usable heat is the definition of?

Select one:

a.
Radiated heat

b.
Flue gas

c.
Combustion efficiency

d.
Stoichiometric combustion

Feedback

Your answer is correct.

The correct answer is: Combustion efficiency

Question **8**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

In practice, what must be added to achieve complete combustion?

Select one:

a.
Dilution air

b.
Primary air

c.
Excess air

d.
NOx

Feedback

Your answer is incorrect.

The correct answer is: Excess air

Question **9**

Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

Instruments that read NOx, read in units?

Select one:

a.
Parts per million

b.
PSI

c.
Degrees Celsius

d.
Parts per thousand

Feedback

Your answer is incorrect.

The correct answer is: Parts per million

Question **10**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

Identify three categories of flue gas analyzers

Select one or more:

a.
Liquid

b.
Continuous sampling

c.
Tube

d.
Trunk

e.
Inline

f.
Probe

g.

Gas

Feedback

Your answer is correct.

The correct answers are: Tube , Liquid, Continuous sampling

Question **11**

Partially correct

Mark 0.47 out of 1.00

Flag question

Question text

The combustible gas indicator is designed to indicate the presence of? (select all that apply)

Select one or more:

a.
Alcohol

b.
Fuel gas

c.
Acetone

d.
Air

e.
Sulfur dioxide

f.
Gasoline

g.
Carbon monoxide

h.
Acetylene mixtures

Feedback

Your answer is partially correct.

You have correctly selected 4.
The correct answers are: Gasoline, Alcohol, Acetone, Fuel gas, Acetylene mixtures

Question **12**

Correct

Mark 1.00 out of 1.00

Flag question

Question text

What are the three basic types of electrical meters?

Select one or more:
a.
Rheostat

b.
EMF Amplifier

c.
Wattmeter

d.
Ammeter

e.
Ohmmeter

f.
Barometer

g.
Voltmeter

Feedback

Your answer is correct.

The correct answers are: Voltmeter, Ammeter, Ohmmeter

Question **13**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which unit of measure is used to describe electrical potential?

Select one:
a.
Ohms

b.
Amperage

c.
Voltage

d.
Resistance

Feedback

Your answer is incorrect.

The correct answer is: Voltage

Question **14**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

Which meter would be used to determine the electrical potential of a thermopile?

Select one:
a.
Milimeter

b.
AC React Meter

c.
AC Millivolt Meter

d.
DC Millivolt Meter

Feedback

Your answer is correct.

The correct answer is: DC Millivolt Meter

Question **15**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which unit of measure is used to describe current flow?

Select one:
a.
Ohms

b.
Amperage

c.
Velocity

d.
Volts

Feedback

Your answer is incorrect.

The correct answer is: Amperage

Question **16**

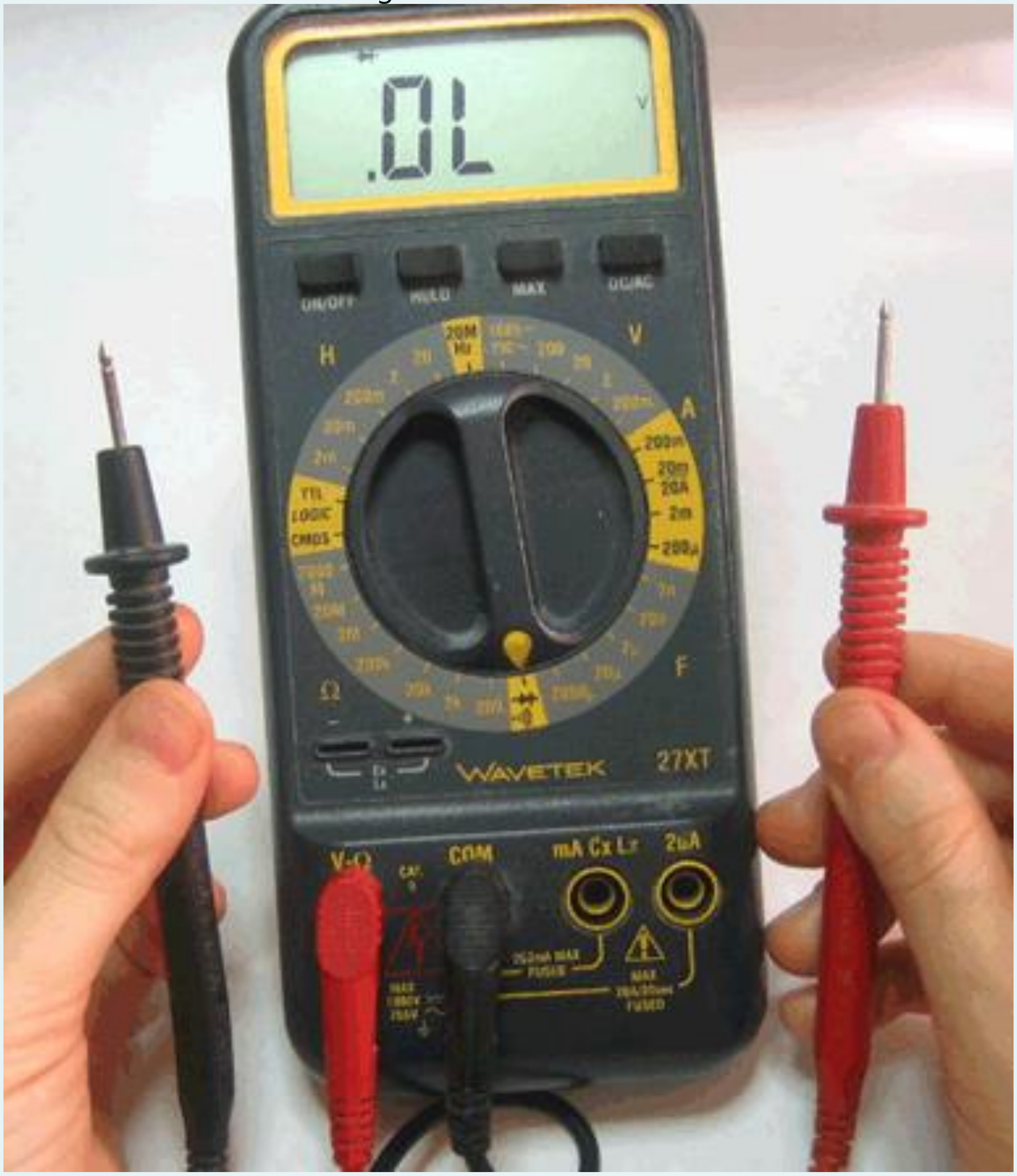
Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What does the meter reading illustrated below indicate?



Select one:

a.

Optimal Voltage

b.

Infinite resistance or no continuity
c.
0 VA

d.
Outer Voltage Limit

Feedback

Your answer is incorrect.

The correct answer is: Infinite resistance or no continuity

Question **17**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

Which meter requires the circuit to be de-energized prior to use?

Select one:
a.
Wattmeter

b.
Ammeter

c.
Ohmmeter
d.
Voltmeter

Feedback

Your answer is incorrect.

The correct answer is: Ohmmeter

Question **18**
Correct
Mark 1.00 out of 1.00
Flag question

Question text

What is the purpose of a continuity test?

Select one:
a.
Testing for low voltage

b.

Testing for a fluctuating average

c.
Testing for a complete circuit
d.
Testing for excessive voltage

Feedback

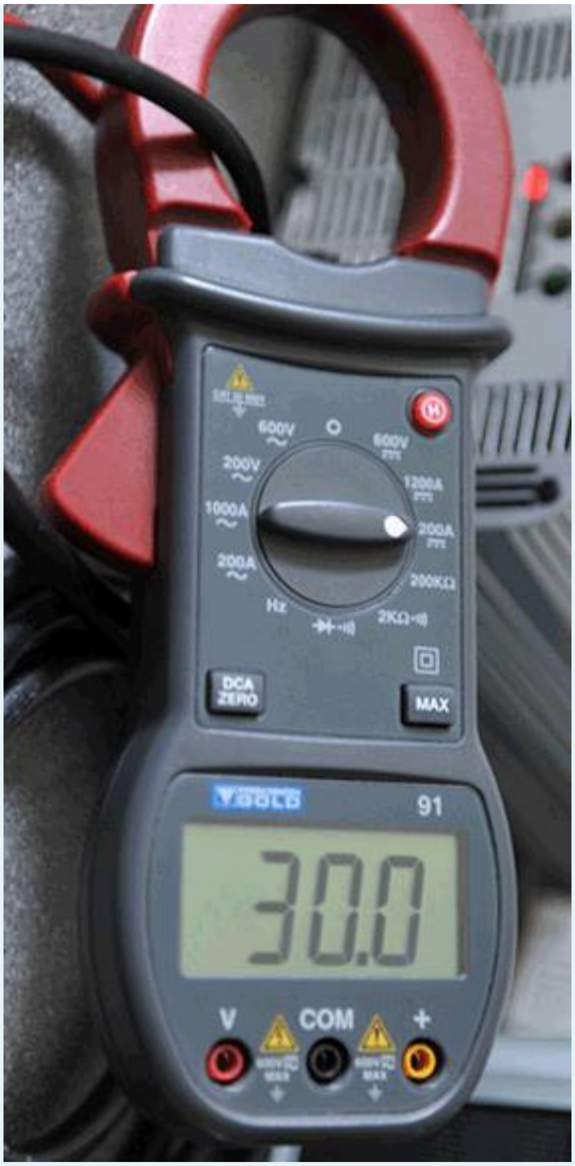
Your answer is correct.

The correct answer is: Testing for a complete circuit

Question **19**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the reading on the meter illustrated below?



Select one:

a.
30 Milliamps

b.
30 DC Amps

c.
30 Watts

d.
30 AC Amps

Feedback

Your answer is incorrect.

The correct answer is: 30 DC Amps

Question **20**

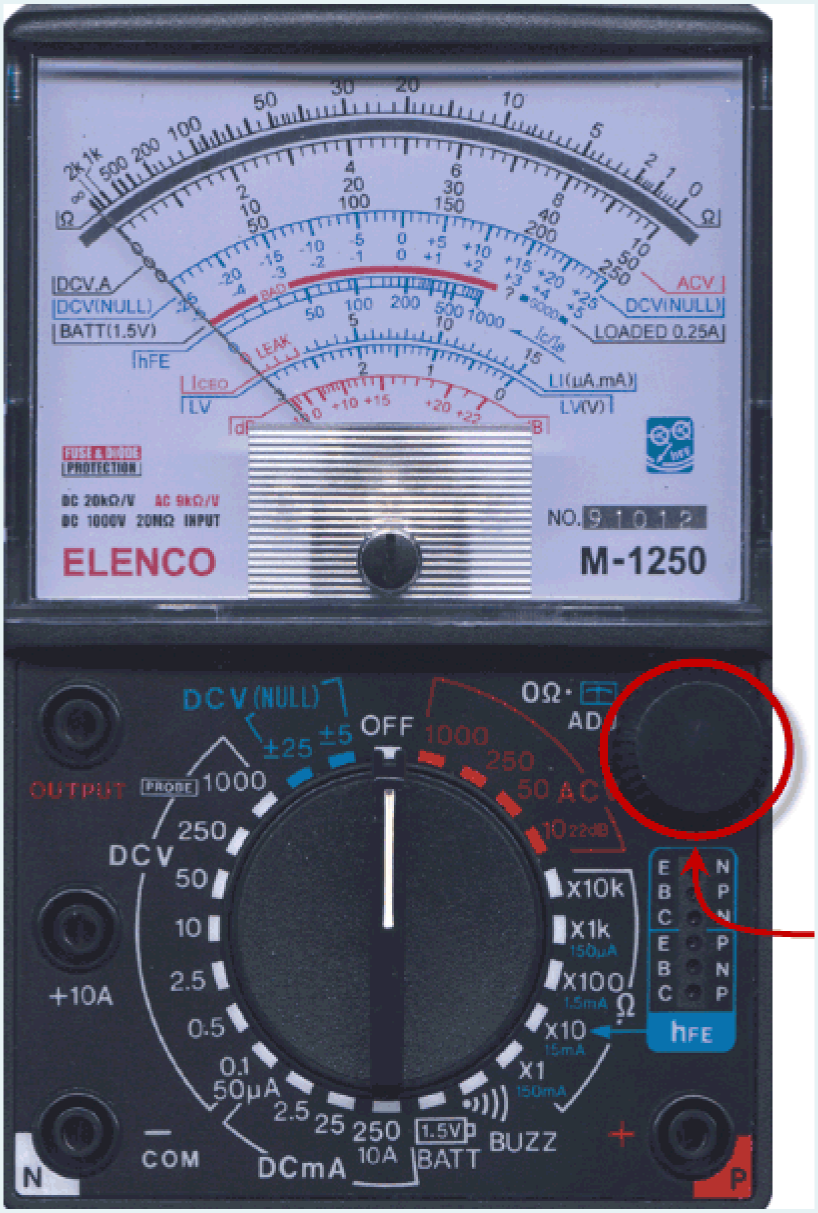
Correct

Mark 1.00 out of 1.00

Flag question

Question text

What is the purpose of the adjustment knob identified on the meter illustrated below?



Select one:

a.

To zero the meter when testing amperage

b.
To increase resistance when testing high amperage

c.
To zero the meter when testing resistance

d.
To zero the meter when testing voltage

Feedback

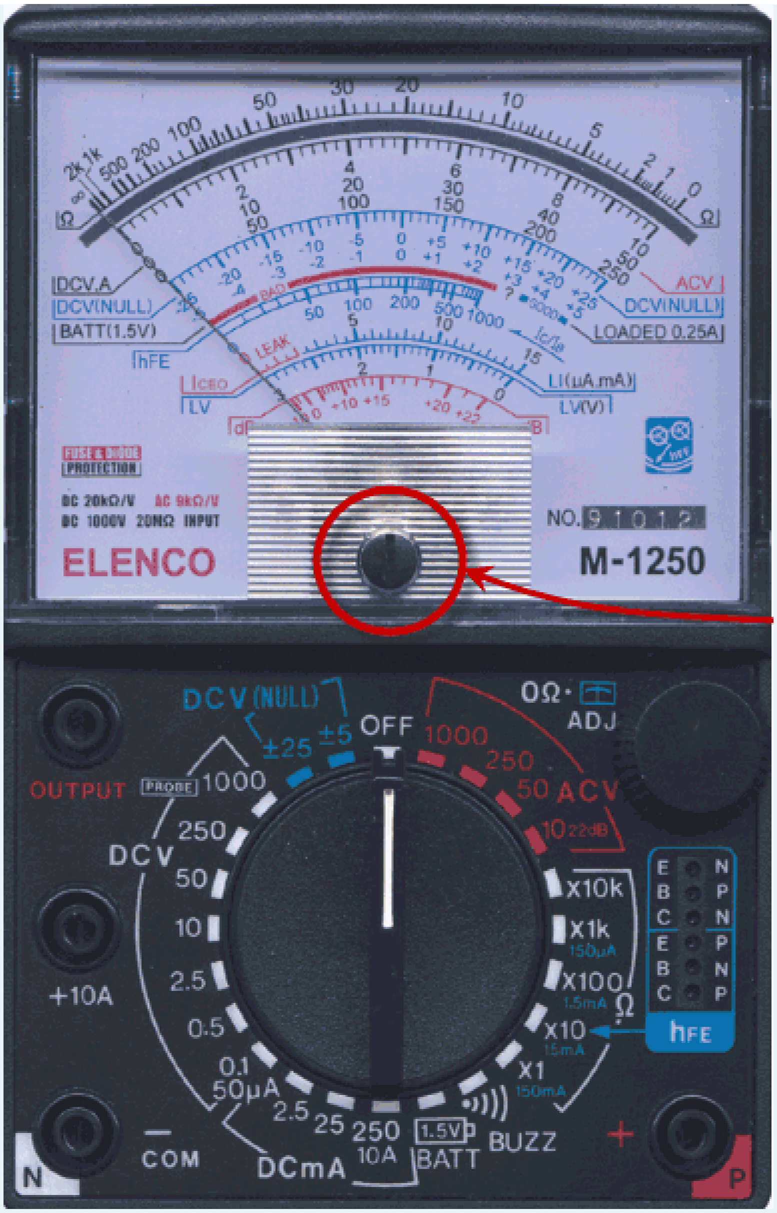
Your answer is correct.

The correct answer is: To zero the meter when testing resistance

Question **21**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the purpose of the adjustment screw identified on the meter illustrated below?



Select one:

a.
To zero the meter prior to measuring resistance

b.
To increase the voltage reading

c.
To reset after over load

d.
To zero the meter prior to measuring voltage or current

Feedback

Your answer is incorrect.

The correct answer is: To zero the meter prior to measuring voltage or current

Question **22**

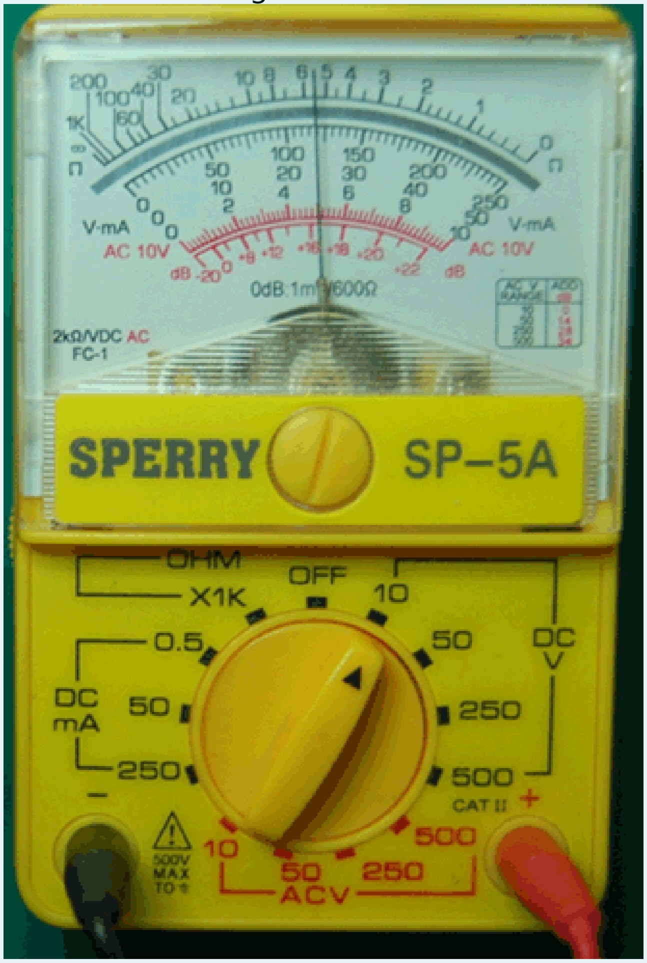
Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What is the reading on the meter illustrated below?



Select one:

a.

5 DC Volts

b.

10 DC Volts

c.

50 DC Volts

d.

5.5 AC Volts

Feedback

Your answer is incorrect.

The correct answer is: 5 DC Volts

Question **23**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

When using a VOM, what must be done prior to measuring the resistance of a load?

Select one:

a.
Ensure the load is de-energized and adjust for infinite resistance

b.
Ensure that the load is energized and zero the Ammeter

c.
Ensure that the load is de-energized and zero the ohmmeter

d.
Ensure that the load is energized and zero the ohmmeter

Feedback

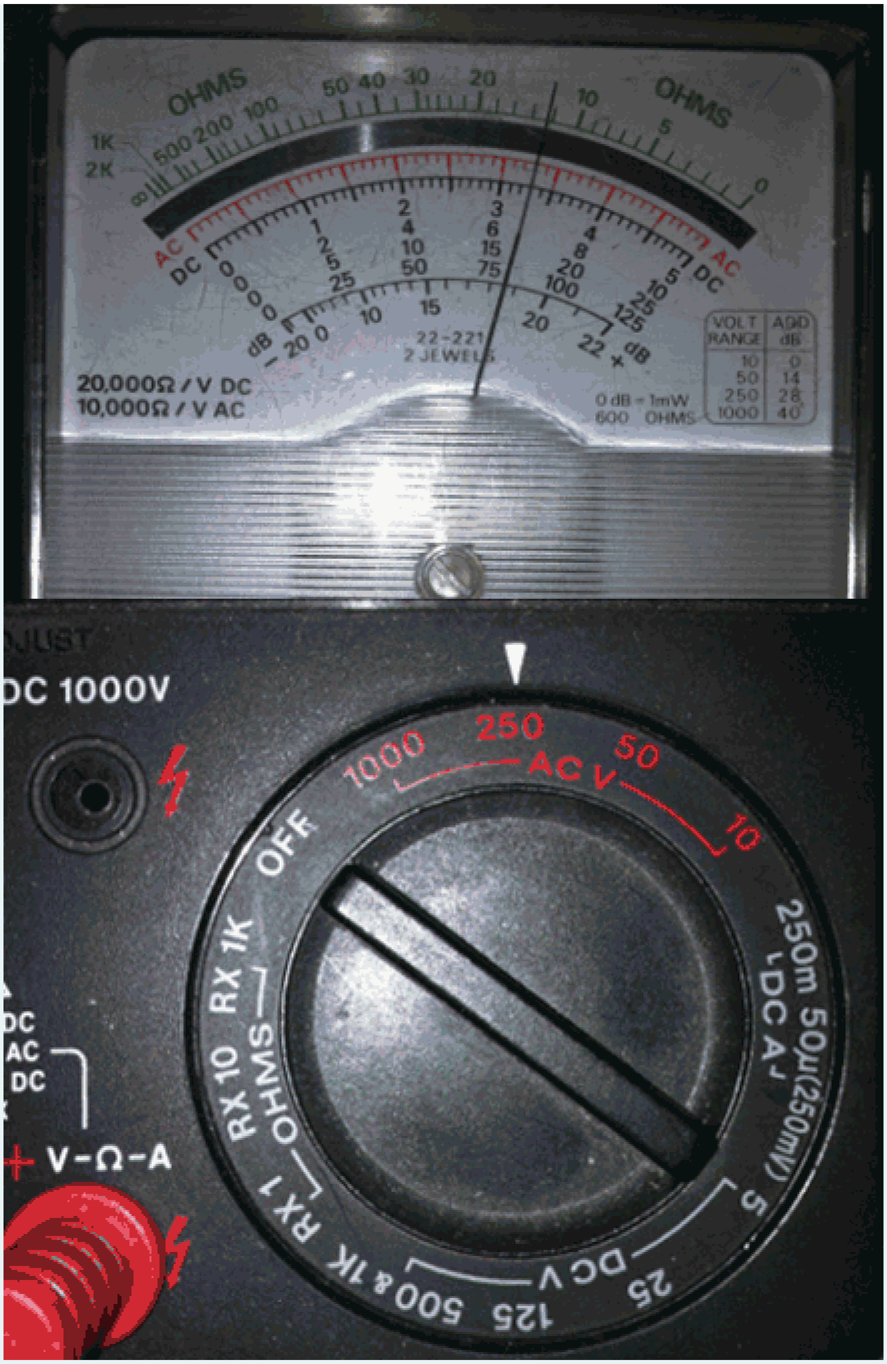
Your answer is incorrect.

The correct answer is: Ensure that the load is de-energized and zero the ohmmeter

Question **24**
Incorrect
Mark 0.00 out of 1.00
Flag question

Question text

What is the reading on the meter illustrated below?



Select one:

a.
12 Ohms

b.
16.5 AC Volts

c.
250 AC Volts

d.
165 AC volts

Feedback

Your answer is incorrect.

The correct answer is: 165 AC volts

Question **25**

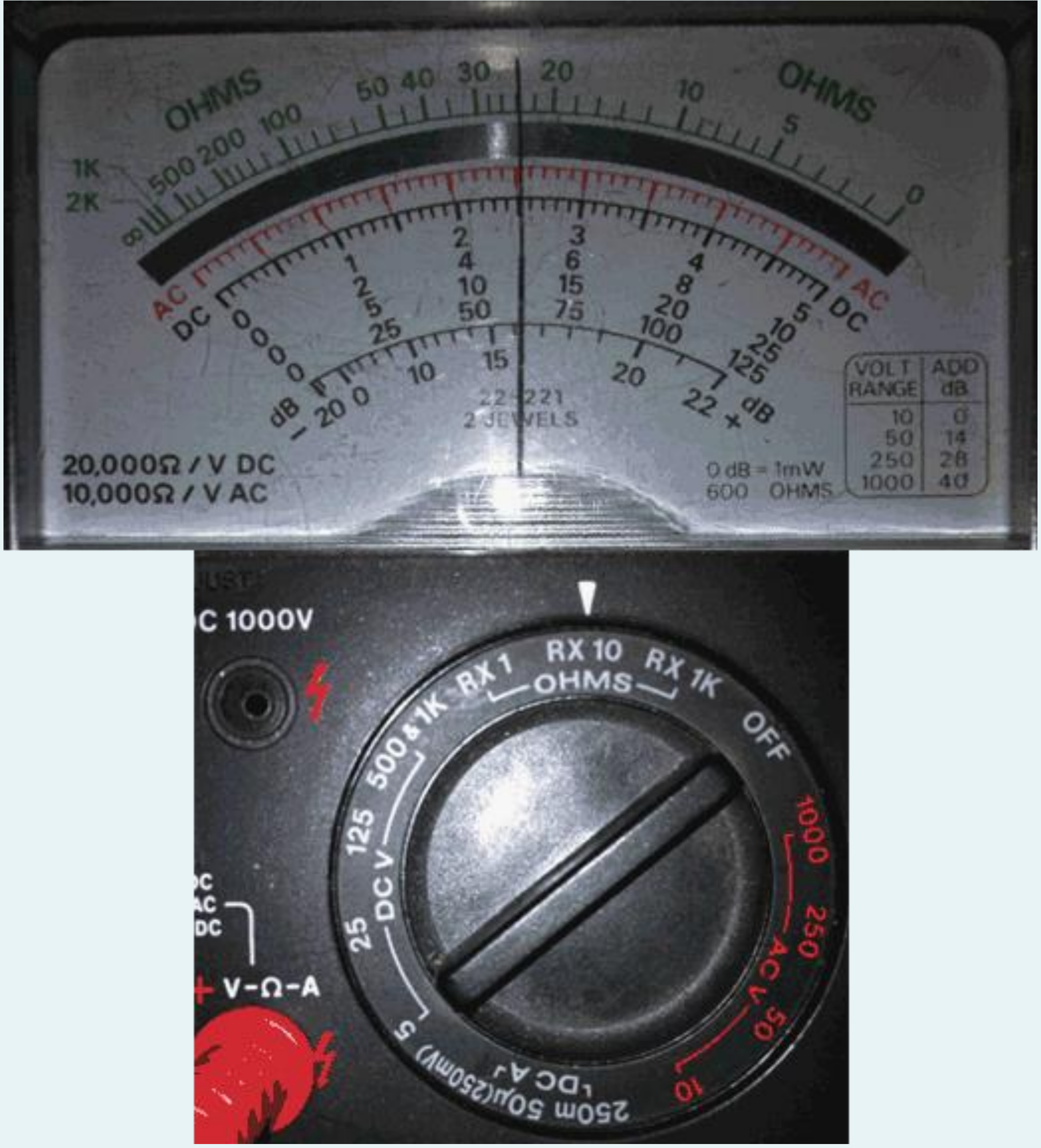
Incorrect

Mark 0.00 out of 1.00

Flag question

Question text

What is the reading on the meter illustrated below ?



Select one:

a.
240 Ohms

b.
22 Ohms

c.
220 Ohms

d.
24 Ohms

Feedback

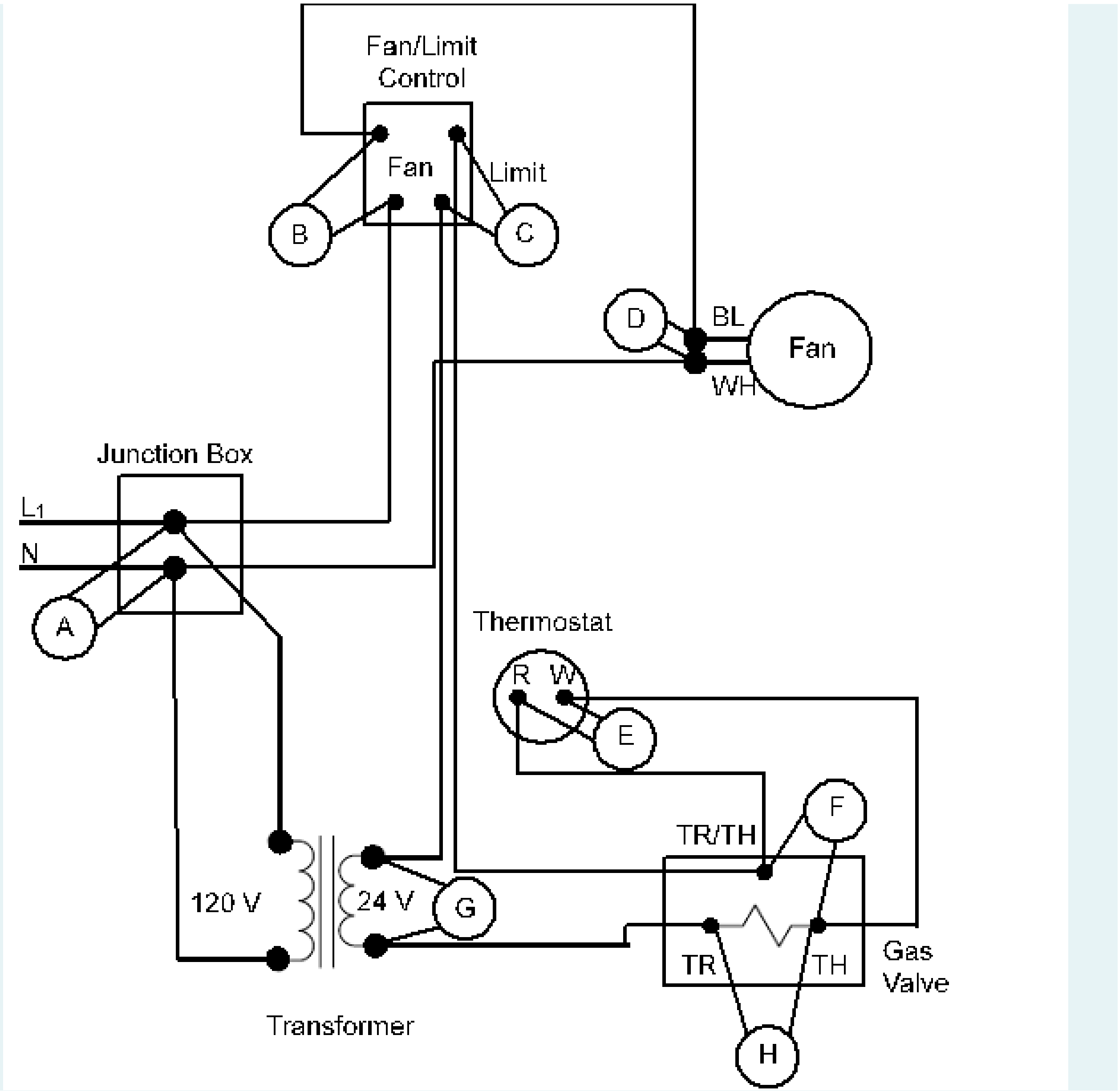
Your answer is incorrect.

The correct answer is: 240 Ohms

Question **26**
Partially correct
Mark 0.38 out of 1.00
Flag question

Question text

State the anticipated voltage readings at Points A to H if the thermostat is not calling for heat and the fan motor is not operating.



A Answer 1Choose...0 Volt24 Volt120 Volt

B Answer 2Choose...0 Volt24 Volt120 Volt

C Answer 3Choose...0 Volt24 Volt120 Volt

D Answer 4Choose...0 Volt24 Volt120 Volt

E Answer 5Choose...0 Volt24 Volt120 Volt

F Answer 6Choose...0 Volt24 Volt120 Volt

G Answer 7Choose...0 Volt24 Volt120 Volt

H Answer 8Choose...0 Volt24 Volt120 Volt

Feedback

Your answer is partially correct.

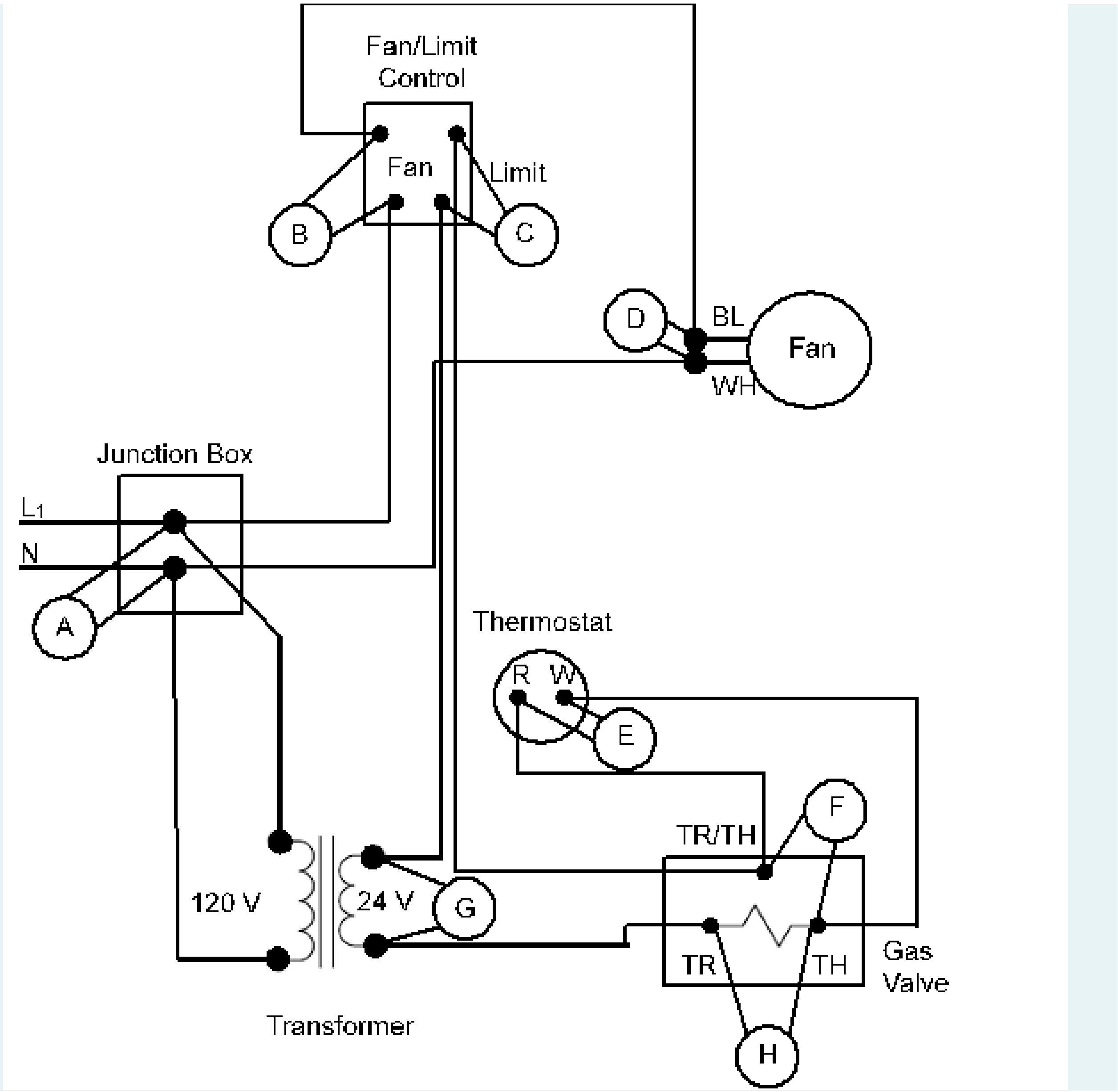
You have correctly selected 3.
The correct answer is: A → 120 Volt, B → 120 Volt, C → 0 Volt, D → 0 Volt, E → 24 Volt, F → 24 Volt, G → 24 Volt, H → 0 Volt

Question **27**

Partially correct
Mark 0.13 out of 1.00
Flag question

Question text

State the anticipated voltage readings at Points A to H if the thermostat is calling for heat and the fan motor is operating.



A Answer 1Choose...24 Volt0 Volt120 Volt

B Answer 2Choose...24 Volt0 Volt120 Volt

C Answer 3Choose...24 Volt0 Volt120 Volt

D Answer 4Choose...24 Volt0 Volt120 Volt

E Answer 5Choose...24 Volt0 Volt120 Volt

F Answer 6Choose...24 Volt0 Volt120 Volt

G Answer 7Choose...24 Volt0 Volt120 Volt

H Answer 8Choose...24 Volt0 Volt120 Volt

Feedback

Your answer is partially correct.

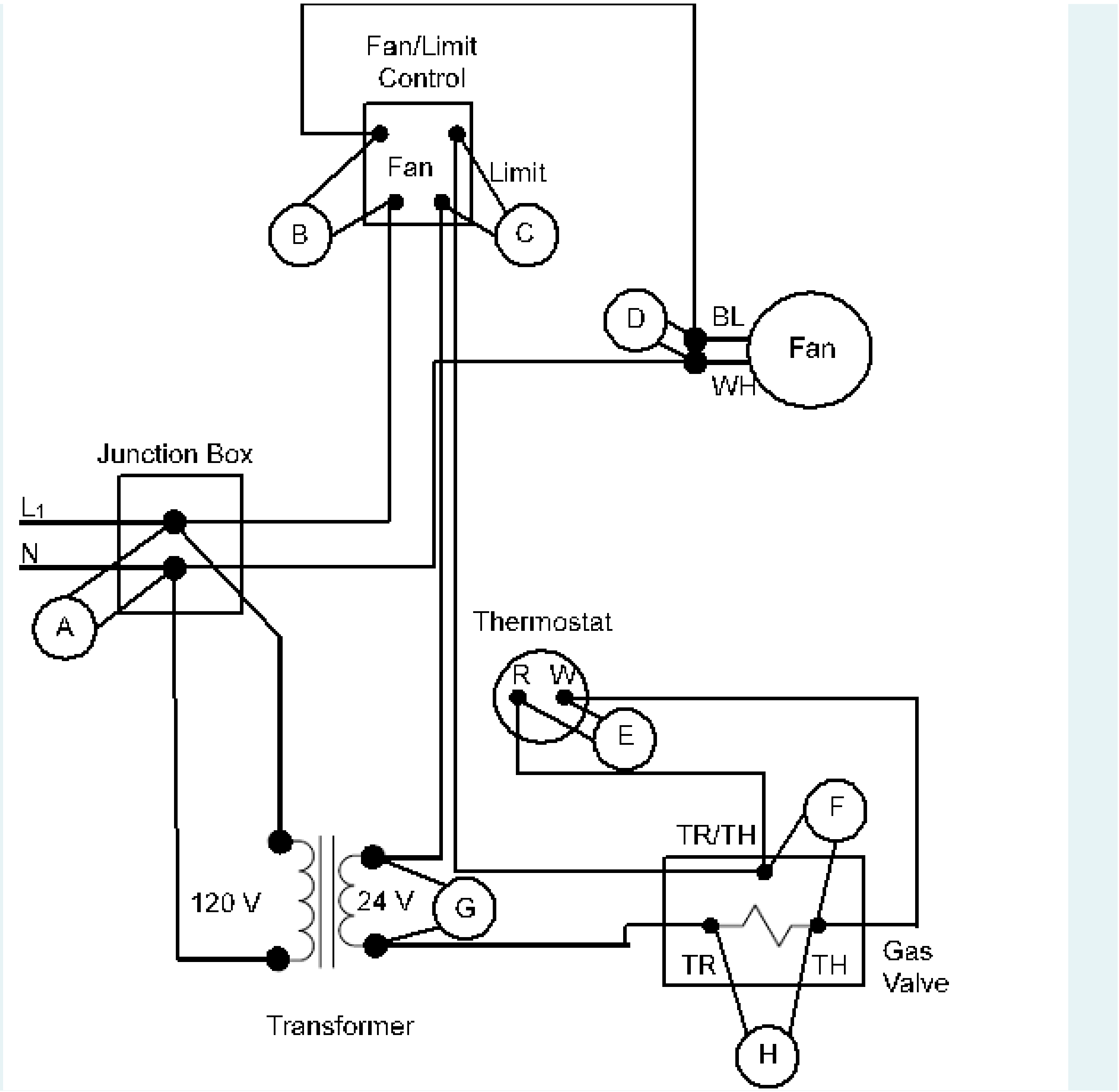
You have correctly selected 1.
The correct answer is: A → 120 Volt, B → 0 Volt, C → 0 Volt, D → 120 Volt, E → 0 Volt, F → 0 Volt, G → 24 Volt, H → 24 Volt

Question **28**

Not answered
Marked out of 1.00
Flag question

Question text

State the anticipated voltage readings at Points A to H if the thermostat is calling for heat, the fan motor is operating, but the high limit has tripped due to a plugged filter :



A Answer 1Choose...120 Volt0 Volt24 Volt

B Answer 2Choose...120 Volt0 Volt24 Volt

C Answer 3Choose...120 Volt0 Volt24 Volt

D Answer 4Choose...120 Volt0 Volt24 Volt

E Answer 5Choose...120 Volt0 Volt24 Volt

F Answer 6Choose...120 Volt0 Volt24 Volt

G Answer 7Choose...120 Volt0 Volt24 Volt

H Answer 8Choose...120 Volt0 Volt24 Volt

Feedback

Your answer is incorrect.

The correct answer is: A → 120 Volt, B → 0 Volt, C → 24 Volt, D → 120 Volt, E → 0 Volt, F → 0 Volt, G → 24 Volt, H → 0 Volt

Question **29**

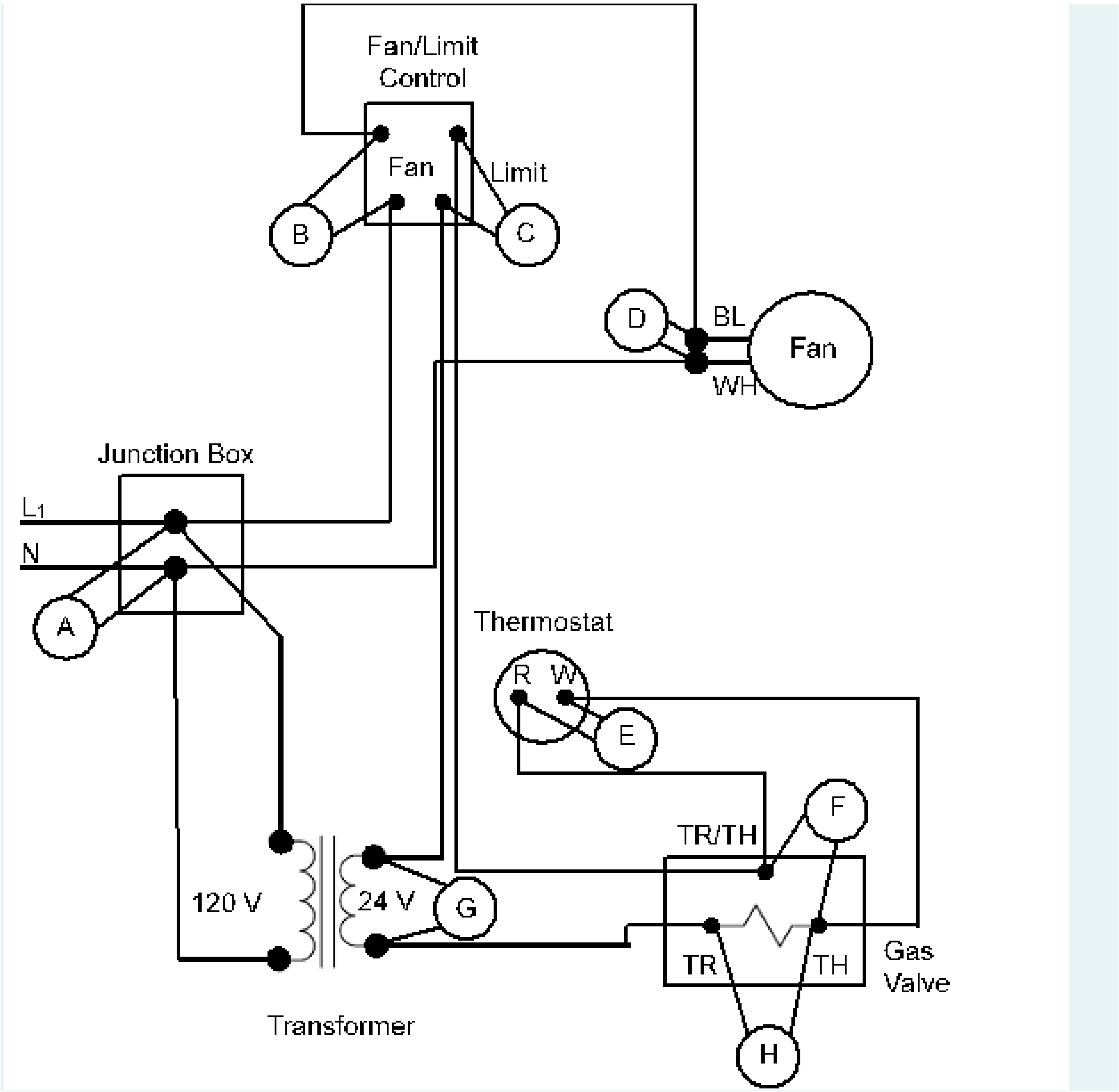
Not answered

Marked out of 1.00

Flag question

Question text

If the power was switched off at the circuit breaker and an audible continuity tester was used at Points A to H , at which test points would the meter be audible if the thermostat is not calling for heat?



C Answer 1Choose...NoYes

D Answer 2Choose...NoYes

A Answer 3Choose...NoYes

G Answer 4Choose...NoYes

F Answer 5Choose...NoYes

B Answer 6Choose...NoYes

E Answer 7Choose...NoYes

H Answer 8Choose...NoYes

Feedback

Your answer is incorrect.

The correct answer is: C → Yes, D → Yes, A → Yes, G → Yes, F → Yes, B → No, E → Yes, H → Yes

Question **30**
Not answered
Marked out of 1.00
Flag question

Question text

Two common types of electrical current are:

Select one:
a.
direct and alternating
b.
alternating and poly phase
c.
direct and single phase
d.
single phase and poly phase

Feedback

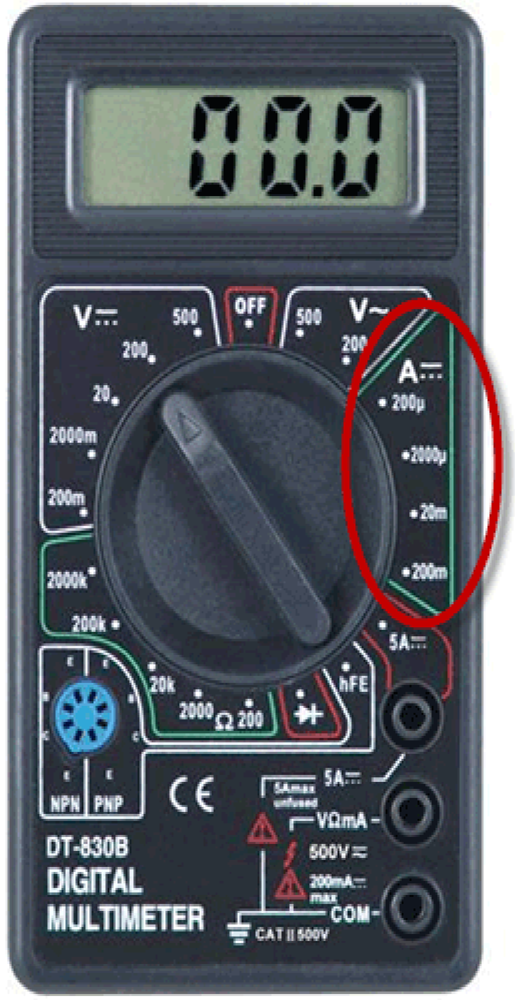
Your answer is incorrect.

The correct answer is: direct and alternating

Question **31**
Not answered
Marked out of 1.00
Flag question

Question text

The range selector identified by the red circle on the meter illustrated below is used to measure:



Select one:

a.
AC Volts

b.
DC Volts

c.
AC current

d.
DC current

Feedback

Your answer is incorrect.

The correct answer is: DC current